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ABSTRACT

This program is designed to train individuals to develop and evaluate educational products by means of a consortium composed of agencies and individuals in Southern California with expertise in one or more aspect of product development and product evaluation. The trainees would include degree and non-degree candidates, and the program would provide training for individuals wishing to acquire specific skills and for agencies wishing to promote training for a staff sub-group. By focusing upon the training of outstandingly competent product developers and product evaluators, the agencies collaborating to design the training program believed that they could best contribute to the improvement of the country's schools. The principal site would be a training laboratory located near the UCLA campus, and the basic year-round training would be supplemented by specialized institutes and short courses. The 13 agencies in the consortium are identified and described. The various programs (one year, short term, graduate degree-related, and master of arts) are outlined, together with the instructional objectives and measurement procedures. Additional material includes vitae of the program staff and copies of correspondence concerning the development of the program. (MBM)

Final Report

Project No. 0-~~9036~~ 9036
Contract No. OEC-0-70-4765 (520)

A TRAINING PROGRAM FOR DEVELOPERS AND EVALUATORS OF EDUCATIONAL PRODUCTS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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W. James Popham

University of California, Los Angeles
Los Angeles, California 90024

December, 1970

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education

The products produced herein were performed pursuant to a contract with the Department of Health, Education, and Welfare, U.S. Office of Education under the Elementary and Secondary Education Act of 1965, Public Law 89-10, Title IV.

SP005104

BRIEFING SUMMARY

New Design for Training

Prime contractor for operational phase: University of California, Los Angeles

Project Director for operational phase: Dr. W. James Popham, Professor, Graduate School of Education, University of California, Los Angeles

Principal participants in operational phase:

Institutions	Individuals
American Tape Duplicators	Donald E. Anderson, Richard L. Zweig
BFA Educational Media	Grant R. Cary, Rex Malcolm
Center for the Study of Evaluation	Marvin C. Alkin
Consolidated Film Industries	Sidney P. Solow
CTB/McGraw-Hill	Joseph Dionne
Educational Development Corporation	Patricia Harrison, George Rosato, Adrian B. Sanford
Graduate School of Education, UCLA	Eva L. Baker, Evan R. Keislar, John D. McNeil, W. James Popham
Institute for Educational Development	Robert T. Filep
KCET Television Station	Maynard Orme
Los Angeles County Superintendent of Schools Office	Robert Gerletti
Theater Arts Department, UCLA	Walter R. Kingson

Major manpower needs being addressed. This program is designed to prepare educational developers and evaluators of already developed educational products. The focus of the program is primarily on development training, with its secondary emphasis being upon the training of evaluators who can appraise the quality of already prepared instructional materials.

Unique features of rationale, content, and process of the proposed design: The training program design features a results-orientation for both kinds of specialists being prepared, namely, product developers

and product evaluators. Professionals will be prepared who are particularly cognizant of the effects of instructional materials with which they are working. They will be less enamored of instructional processes for their own sake than with the results those processes yield. Situated in the Southern California area where a number of professional educational materials developers are located, particularly in the film and television industries, the training program will be operated by a collaborative consortium of eleven egencies. Each of these agencies is capable of making a unique contribution to the training enterprise.

A special Training Laboratory will be located off campus near UCLA, thereby capitalizing on the resources of that institution and permitting collaborative degree-granting programs. The Laboratory will be sufficiently far removed, both physically and instructionally, to permit the program to be truly innovative but, above all, focused on getting results. Extensive praticum assignments will also be arranged on site within the various agencies conducting the training program.

The quality of various phases of the training program will be assessed by customary evaluation techniques and by uniquely devised performance tests which will provide an opportunity for the product developers and the product evaluators to display their competencies in simulated situations which approximate the tasks they will be called upon to perform at the conclusion of their training.

DESCRIPTION OF ACTIVITIES CONDUCTED PURSUANT TO
RESEARCH CONTRACT OEG-0-70-4765(520)

A Training Program For Developers and Evaluators
Of Educational Products

This report will describe the operations associated with conduct of a contract research project for the U.S. Office of Education. The chief product of the contract was an extensive design for a training program to prepare educational developers and product evaluators. That design, submitted separately to the Office of Education, is presented in a document entitled A Training Program for Developers and Evaluators of Educational Products*. The report contained in the following pages, however, will deal only with the procedural, not the substantive, aspects of that project.

A Request for Proposals Arrives

Upon receipt of RFP Number 70-12 which was circulated by the Department of Health, Education, and Welfare in Spring, 1970 to solicit proposals to design new patterns for training particular kinds of educational researchers, five professors affiliated with the Graduate School of Education, University of California, Los Angeles discussed the wisdom of responding to the RFP, both in terms of their own interests as well as the potential local resources which might be drawn upon to carry out a major training program, should one be funded. A positive decision was reached and a lengthy series of discussions took place regarding what kind of proposal to submit, what kinds of training strategies to emphasize and, most curcially, what kinds of educational researchers to train. The reasons for the positive decision, as well as a choice to emphasize the training of educational developers and educational product evaluators, is perhaps best summarized in the introduction to the proposal which was prepared in response to RFP 70-12 and may be useful to the reader, for it accurately depicts why these five individuals were drawn to the particular kind of training program which they recommended. Accordingly, that section of the proposal is presented below:

> Almost five years ago a group of individuals associated with the University of California, Los Angeles became convinced that to produce really dramatic improvements in the quality of American education, the effectiveness of the materials used for instruction would have to be drastically increased. Such a commitment emerged quite naturally from this group's experience during the early sixties with the programmed instruction approaches. A formidable collection of researchers concerned with programmed instruction variables had assembled at UCLA, including Arthur A. Lumsdaine, Susan Meyer Markle, Evan R. Keislar, John D. McNeil, and W. James Popham. Their research efforts yielded useful insights regarding

*Graduate School of Education, University of California, Los Angeles, December, 1970.

what in the mid-1960's was considered programmed instruction, i.e., small step programs in the Skinnerian tradition. Yet it became clear that the trial-revision strategy which was used with programmed instruction, not to mention a host of related tactics, e.g., use of measurable objectives, was equally applicable to any reproducible set of instructional materials. Thus when Lumsdaine[1] and Markle[2] urged that a broadened conception of a "program" be employed so that it included any set of replicable instructional events, their UCLA colleagues readily concurred.

But the programmed instruction movement, as a vehicle for promoting widespread improvements in American education, began to lose its luster. It had become evident that commercial publishers could not, or would not, expend the considerable funds necessary to nurse large scale programmed instruction sequences through the costly trial-revision cycles they needed for demonstrable effectiveness. Few of the early programmed instruction entrepreneurs were still in business. The table stakes to play the materials development game were too high for most. An infant technology was growing, but massive financial resources were required. Yet when the prospects seemed most bleak, the situation brightened unexpectedly. The federal government was going to support development activities through the U.S. Office of Education's support of such agencies as the newly established research and development centers and regional laboratories.

Yet, as many of these new institutions emerged they did not, to the chagrin of our group at UCLA, emphasize the development of educational products. Instead, there was a plethora of classic educational research projects or, perhaps, efforts to promote certain innovations, e.g., microteaching, interaction analysis. Few centers or laboratories focused their major programs on development. For we had been unrealistically optimistic. How could there be many full product development enterprises? There weren't enough competent development specialists to go around. This deficiency had to be rectified.

We had to promote a new form of specialization in which large numbers of educators would acquire the competencies needed for the development of validated instructional products. Popham's 1966 article[3] advocating such a specialty stimulated several UCLA colleagues, chiefly Eva L. Baker, to develop a new doctoral level

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[1] Lumsdaine, A. A. "Educational Technology, Programmed Learning, and Instructional Science." Theories of Learning and Instruction. Sixty-third Yearbook, National Society for the Study of Education, Part I. Chicago: Distributed by the University of Chicago Press, 1964, p. 385.

[2] Markle, Susan M. "Empirical Testing of Programs." Programmed Instruction. Sixty-sixth Yearbook, National Society for the Study of Education, Part II. Chicago: Distributed by the University of Chicago Press, 1967, p. 104.

[3] Popham, W. James. "Product Research: A New Curriculum Specialty." Educational Leadership, March, 1966. p. 507-513.

training program which received one of the initial Title IV ESEA research training program grants. For several years the UCLA Product Research Training Program was the only graduate level training program of its kind in the United States,[4] that is, it was the only graduate training program with the primary mission of training educational developers.

Several[5] of the UCLA group, in addition to their responsibilities in the Product Research Training Program, developed full or part-time working relationships with the Southwest Regional Laboratory for Educational Research and Development (SWRL), one of the few regional laboratories with a heavy commitment to the development of educational products. During the early phases of SWRL's growth there was considerable activity involving the identification of critical skills required for the development of educational products. In particular, Drs. Baker and Popham participated actively in these enterprises, leading in 1967 to the preparation of a number of self-instructional products designed for training prospective educational developers. For example, Rules for the Development of Instructional Products[6] represented an effort to systematize and transmit the primary skills needed at key points in the development enterprise. But as SWRL's project commitments expanded on several fronts, the emphasis on staff training was diminished. Little in the way of analyzing the skills required in development or in preparing materials to promote them has occurred at SWRL for the past few years. There is a need, accurately reflected in the RFP for which this proposal is a response, to devise some new approaches to the identification and codification of development skills and to design training patterns to prepare large numbers of professionals who possess such skills.

During the past several years the UCLA Center for the Study of Evaluation (CSE), particularly through the efforts of its current Director, Marvin C. Alkin, has been increasingly interested in questions associated with the evaluation of educational products and of programs in which such products are used. It was perhaps predictable that the proximity of two groups concerned with (1) the development of educational products and (2) the evaluation of educational programs would find numerous arenas of mutual interest. Such has been the case, particularly as a function of Professor Alkin's CSE leadership.

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[4] According to a nationwide survey conducted by officials of the McGraw Hill Inc. Publishing Company.

[5] Professors Baker, Keislar, McNeil and Popham.

[6] Popham, W. James and Baker, E. L. Rules for the Development of Instructional Products. Southwest Regional Laboratory for Educational Research and Development: see also Baker, E. L. "Design Specifications: Objectives and Prototype Items." Developing Instructional Products: A Collection of Working Papers and Training Documents, Southwest Regional Laboratory, October, 1968.

We have, for example, recently established a doctoral program focused on educational evaluation in the UCLA Graduate School of Education. This program, one of only a few such across the nation, is staffed by a number of professors who jointly function as members of program groups involved in the product research doctoral program as well as the educational evaluation doctoral program.

Once more because of Professor Alkin's influence, CSE has during the last year become far more heavily involved in the development of educational products to promote the acquisition of skills needed by evaluators. Indeed, a current project of CSE capitalizes on the efforts of seven of the product research trainees as they develop and field test instructional products to be used in one of the Center's research and dissemination enterprises. The Center is not only preparing a variety of replicable instructional products to be used by evaluators,[7] it is particularly interested in questions of how to evaluate such products both summatively and formatively, that is, both after they are completed and during their development.

In retrospect, then, it is apparent how individuals such as Drs. Alkin, Baker, Keislar, McNeil and Popham would be vitally interested in designing new ways to train developers and evaluators of educational products. They are convinced of the potentially beneficial impact of such products. They have been actively involved in inquiry and training efforts associated with development and evaluation. In concert with colleagues from other agencies possessing personnel and situational resources of value in the contemplated training activities, they are anxious to get under way.

The Proposal is Approved, Work Commences

In mid-June a contract was awarded to support the design activities of our group. Immediately the five previously mentioned individuals met to explore strategies for consummating the project since it had to lead to a final report that was, in essence, a proposal to support a major training program for product evaluators and educational developers. These early summer discussions were marked primarily by questions regarding which was the best method to follow in putting together a training design. Since the RFP had stipulated that the training program was to be consortium-based, should potential members of the training consortium be invited in at the outset to participate in the discussions? Should the five UCLA professors devise training scheme alternatives and then take these to possible consortium members? If consortium agencies were to be involved integrally in the development of the proposal, we believed that a decision regarding their participation should be made immediately.

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[7] Alkin, Marvin C. et al. Simulated Evaluation Exercise: Instructor's Manual, Center for the Study of Evaluation, UCLA, Report No. 49, May, 1969.

After exhaustive consideration, it was decided that at least for the early period of analysis it would be preferable for us to work alone, involving other individuals as informal consultants and advisors, rather than establish a formal consortium organization early in the game. As it turned out, this decision had some advantages and disadvantages.

On the positive side, this insular strategy enabled our group to engage in an unconstrained analysis of what was needed nationally to improve the quality of training for educational developers and product evaluators. We did not have to worry about the local availability of resources, we could look at the entire country as our training arena. Abandoning parochial constraints seemed to permit more imaginative proposals during our discussions. We devised a scheme which was truly nationwide in orientation, consisting in essence of a consortium that was a confederation of all those individuals and agencies who possessed resources to supply training in our two chosen specialties. We envisaged our scheme as an attempt to upgrade the entire quality of developer and evaluator training throughout the United States. While agencies within the Southern California region would be involved in such a consortium, as would any other agency in the United States having sufficient training resources, there was no particular need to involve local groups intensively to work out the crucial elements of the consortium procedure. Thus, we would be able to save potential consortium members a considerable amount of early planning time had our plan been approved.

On the deficit side, however, it turned out that when we took our notion of a nationwide consortium to officials of the Office of Education for a required early September oral progress report, our scheme was not encouraged. We were advised that while there were meritorious elements in the plan, it was lokely that such a consortium notion could not be funded in the immediate future. We were advised that it would be better for us to devise a locally based training consortium. Thus, we had essentially lost somewhat over two months devising a scheme which, while possibly suitable for future years, was not appropriate for the project at hand. (Incidentally, the most recent version of the working paper describing our conception of a nationwide consortium is provided in Appendix A of the companion document, A Training Program for Developers and Evaluators of Educational Products.)

Recruiting Consortium Members

In view of these events, we had to intensify immediately our working relationships with potential consortium agencies, some of whom had been contacted informally during the early summer, but none with a specific request to participate in a locally operated training consortium. We devised the following brief document to outline possible roles of a consortium member in our training program.

Brief Description: A Possible Design For A Consortium-Based Training Program In Educational Product Development And Product Evaluation

Purpose of the Training Program. To train individuals who will (1) develop educational products and (2) evaluate educational products.

Members of the Training Consortium. Agencies and individuals in the Southern California area possessing expertise in one or more aspects of product development or product evaluation.

Trainees. The individuals to be trained by the consortium would be of two kinds, degree and non-degree candidates. Programs leading to advanced degrees (Masters and Doctorate) could be arranged in association with the Graduate School of Education, UCLA. The training program would provide training either for people who, as individuals, wished to acquire specific skills or for agencies (e.g., a regional educational laboratory) which wished to promote training for a staff sub-group.

Nature of Training Program. A Training Laboratory located near the UCLA campus would be the principal site for training activities, although specialized training would be conducted in other locales (e.g., if equipment requirements dictate the desirability of on site training). A basic year round training program with two prime purposes, i.e., product development and product evaluation would be offered for a limited number of trainees (approximately 20-30). Specialized institutes and short courses ranging from a few days to several weeks would be offered for approximately 100-150 individuals during the year.

Nature of Consortium Member's Participation. Four different forms of participation are envisaged. Consortium members would be encouraged to engage in as many of these as their interests and resources permitted:

1. Membership on general advisory committee which would meet every two months or so to offer overall advice regarding directions of the training enterprises.

2. Visiting Faculty Assignment at the Training Laboratory wherein persons possessing particular competencies could, on a regular or a periodic basis, participate in the instructional effort of the Laboratory.

3. Supervising Internship Activities at the consortium member's own agency whereby one or more trainees would participate in an extended practicum assignment related to product development or product evaluation. (Nationwide practicum arrangements would also be sought, but not necessarily to be sponsored by consortium members.)

4. Conduct On-Site Training Components by offering relatively autonomous training activities at the consortium member's agency. These training activities would be systematically related to the Training Laboratory's work, but could be conducted by consortium members' personnel.

We then discussed this document through a series of individual meetings with representatives of the agencies listed below. Generally, these were face to face meetings, although in two cases extensive telephone conversations were used as a substitute.

Agency	Address
BFA Educational Media	11559 Santa Monica Boulevard Los Angeles, California
CTB/McGraw-Hill	Del Monte Research Park Monterey, California
Center for the Study of Evaluation	405 Hilgard Avenue Los Angeles, California
Consolidated Film Industries	959 Seward Street Hollywood, California
Educational Development Corporation	220 University Avenue Palo Alto, California
Graduate School of Education, University of California	405 Hilgard Avenue Los Angeles, California
Institute for Educational Development	999 North Sepulveda Boulevard El Segundo, California
KCET	1313 North Vine Street Hollywood, California
The Los Angeles County Superintendent of Schools	115 West Washington Boulevard Los Angeles, California
System Development Corporation	2500 Colorado Avenue Santa Monica, California
Department of Theater Arts, University of California	405 Hilgard Avenue Los Angeles, California

All of the agencies contacted agreed to participate in the training consortium. All were impressed with the importance of the mission and expressed considerable enthusiasm about the possibility of devising a training program which would prepare educational developers and product evaluators. Some agencies offered to assist in the design activity more than others, as might have been expected. Frankly, the core

planning group at UCLA was reluctant to impose upon the terribly busy schedules of the people we had invited since these representatives are the very top individuals in their field. We had a choice of either going for mediocre people who might spend a great deal of time with us in designing the training program, or opting to secure the very best people who would be able to be with us less frequently during the design phase. We chose the latter alternative. It is important to note, however, that these individuals all agreed to devote great attention to the training project should it be approved. It is a tricky situation one faces when trying to recruit a number of highly competent people to participate in designing a program which, during its creation period, is only probabilistically destined to exist. We were extremely gratified with the cooperation of individuals from the agencies identified above.

The Total Group Convenes

On October 14 the potential consortium members met as a group at the Sunset Canyon Recreation Center at UCLA. Although a number of the individuals attending this session already knew each other, there was the necessity for introductions plus brief descriptions of the backgrounds and the primary mission of each agency. The probable role of each group in the training program was explored and information provided regarding the current status of a draft statement regarding a proposed training design. Each group present was urged to describe in as much detail as possible the particular competencies which they could best provide for the training program. Each group represented was also asked to identify those staff members who would be participating in the project. A considerable amount of interchange occurred during this extended meeting, with various views being offered regarding how the training program should be devised. Materials were identified which were to be subsequently contributed by each agency for inclusion in the design report.

After the October 14 meeting a series of individual conferences between members of the project staff and the potential consortium members occurred, some by phone, most in person. In general, these meetings were designed to describe in more detail the probable role of the consortium agency, or certain financial aspects of its arrangement with the consortium.

When all the materials had been received from the consortium members a preliminary version of the final report of the project was submitted to each agency on November 16 with the suggestion that modifications be made and the document returned to the project director by November 23. Individuals in the consortium agencies were encouraged to contact the director by phone or set up a meeting for a more extensive discussion.

The Final Draft

While most agencies and individuals involved had few suggestions for changes, there was a fair amount of re-writing that occurred prior to transmitting the report to the UCLA Printing Office in late November. As indicated earlier, the resulting document of approximately 100 single

spaced pages describes the consortium-based training program devised as a result of this contract.

Brief Needs Survey

Earlier, in mid-September it was evident that information should be secured regarding the possible locations where trainees who had been prepared by the program could be placed, or where organizations existed who would wish to train members of their staffs. We decided to contact representative groups of potential employers, as well as those agencies possessing staffs who might be in need of in-service education, in order to see whether there was indeed a strong interest in the program. Individual letters were sent to 50 Title III ESEA coordinators in state departments of education, 50 chiefs of curriculum and instruction divisions in state departments of education, 50 producers of educational films, 50 publishers of textbooks and educational materials, 50 producers of programmed instruction materials, and 50 miscellaneous producers of educational materials, e.g., regional laboratories, large city school systems, etc. A copy of the letter transmitted to these individuals is included in the Appendix of this report, as are copies of 25 representative responses. Responses to the 300 letters of inquiry through mid-November were arrayed as presented in Table 1.

TABLE 1. Responses To Needs Survey Letter

Type of Agency	Number Sent	Number Returned	Interested in Program	Not Interested
ESEA Title III State Coordinators:	50	6	6	0
State Education Department Curriculum and Instruction Chiefs:	50	29	26	3
Producers of Educational Films:	50	11	9	2
Publishers of Textbooks and Educational Materials:	50	13	10	3
Producers of Programmed Instruction Materials:	50	7	7	0
Miscellaneous Producers of Educational Materials:	50	25	21	4
Totals	300	91	79	12

We believe the 87 percent positive responses to our inquiry, while only about one-third of those we transmitted, does provide an indication of the useful role which could be played by an effective training program for educational developers and product evaluators. A judgment regarding whether our group has been able to design a potentially effective program will have to be reached after examining that design: A Training Program for Developers and Evaluators of Educational Products.

APPENDIX

UNIVERSITY OF CALIFORNIA, LOS ANGELES

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

CENTER FOR THE STUDY OF EVALUATION
UCLA GRADUATE SCHOOL OF EDUCATION
LOS ANGELES, CALIFORNIA 90024

September 17, 1970

A group of us here at UCLA, including Marvin Alkin, Eva Baker, Evan Keislar and John McNeil, have been awarded a contract by the U.S. Office of Education to design a training program for preparing (1) education product developers and (2) educational product evaluators. Near the end of the year we will be submitting our program design to U.S.O.E. and, if approved, the training enterprise will be supported for at least a three year training period at a very substantial level.

Since these individuals have a wealth of experience in training educational product developers and evaluators, we anticipate putting together an outstanding program. UCLA has for the past several years offered the country's only doctoral level graduate program in instructional product development. In addition, the UCLA Center for the Study of Evaluation is currently the major U.S. research and development agency devoted to inquiry regarding evaluation.

There will probably be only three of these new training programs established, so they must definitely serve a national trainee clientele. I am writing you to determine whether your agency would wish to use the resources of the new training program either (1) to provide training in product development and/or product evaluation for members of your staff or (2) to employ newly trained individuals in either of these specialties.

Let me be a little more specific about the training program we are planning. It will be operated by a consortium of agencies and individuals, most of whom will be located in southern California. A staff drawn from this consortium will operate an off-campus training institute affiliated loosely with UCLA. The institute will probably offer both a year-round basic training program as well as shorter, specialized courses (from a few days to several weeks).

Throughout the training activities there will be a dual focus on providing training (both beginning and advanced) for the following two specialties:

> Educational Development. The process of preparing essentially replicable instructional materials or sequences which take responsibility for producing a given behavior change in specified learners. Examples of educational products developed by this trial-revision sequence would include: printed self-instruction programs, highly systematized instructional procedures, educational videotapes, filmstrips, etc.
>
> Educational Product Evaluation. The process of assessing the worth of already prepared educational products such as textbooks or films; that is, all of the materials which could be produced as a consequence of the work of the educational developer.

Although of necessity I have been brief, is there any likelihood that if our training program is set up and functioning as of summer, 1971 that your agency would wish to use the services of the program? If so, I hope you would be willing to write me indicating the nature of your training needs.

Even though we are in the midst of working out details of the new program, I will try to supply additional information if you wish. What I am attempting to do at the moment is simply to explore the current level of training requirements in our two fields of emphases.

Sincerely,

W. James Popham
Professor of Education

WJP/rs

State of New Jersey
DEPARTMENT OF EDUCATION
225 WEST STATE STREET
P. O. BOX 2019
TRENTON, NEW JERSEY 08625

DIVISION OF CURRICULUM AND INSTRUCTION

October 7, 1970

Dr. W. James Popham, Professor of Education
Center for the Study of Evaluation
University of California
Graduate School of Education
Los Angeles, California 90024

Dear Dr. Popham:

Thank you for your letter of September 25 with the description of the U. S. Office of Education supported training program being developed by you at UCLA. There is a genuine need for the work you and your group propose to undertake.

There is definite interest in our using the services of such a training program. We are concerned with product evaluation and educational development. From the brief descriptions of those two specialties, I feel that not only my central staff but my field staff would profit. This means about 175 people.

Please keep me informed.

Sincerely,

Robert H. Seitzer
Assistant Commissioner of Education

RHS/lcs

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October 8, 1970

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Dr. W. James Popham
Professor of Education
Center for the Study of Evaluation
U.C.L.A. Graduate School of Education
Los Angeles, California 90024

Dear Doctor Popham:

Thank you for your letter telling of plans for a training project in the areas of educational development and educational product evaluation. Sounds great!

We are interested in this kind of training, both areas, for a number of our staff members. If we are unable to provide "on the job" or in-service within our own staff, we will be looking for other sources.

Cordially,

Maurice D Burchfield

Maurice D. Burchfield
Director, General Education

MDB:js
cc: William Loomis
Ray Osburn

THE AMERICAN COLLEGE OF LIFE UNDERWRITERS

DANNY G. LANGDON
DIRECTOR OF INSTRUCTIONAL DESIGN

November 10, 1970

Dr. W. James Popham
Professor of Education
University of California
Los Angeles, California 90024

Dear Dr. Popham:

Thank you for your letter of October 1 concerning your U.S.O.E. contract to prepare educational product developers and evaluators. Our Executive Director, Dr. Harold Rahmlow, in an October 15, 1970 reply to you indicated that I would be contacting you relative to my own specific areas of interest and responsibilities within the Adult Learning Laboratory. Knowing of your outstanding work in the area of instructional technology, it is indeed a pleasure to think of the prospects of our working directly with you.

As Director of Instructional Design, my primary responsibility will be for the production-development end of our research and development activities. Our organization is essentially broken down into three broad areas under the Executive Director. These areas are: Research and Evaluation, Instructional Design, and Technical Systems. The first two may be self-explanatory. Technical Systems has as its thrust the specification, acquisition, installation, maintenance and, most importantly, modification of hardware systems relative to the purposes of my own area, Instructional Design.

In terms of the Instructional Design aspect of our tripod organization, possibly the enclosed systems design I have developed will best explain how we, in general, will approach the developmental process through analysis, design, validation, implementation and maintenance. I have prepared a guide following the U. S. Office of Education proposal format for the submission of our own proposals as the initial stage in this total systems design. Having developed this systems design, we then proceeded to develop an organizational framework in order to carry through our activities, both on a research and development basis. I have already indicated the three broad areas of that organizational framework. Within my own area of Instructional Design, I will basically have a staff of writers and programmers working with subject matter experts on the one hand and also the production people in terms of all forms of media under my control such that we can take a software-oriented approach. With the systems design and organizational framework in mind, I think you can

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easily see our commitment to Instructional Technology and thus the need for the finest in product developers and evaluators. Our evaluators and developers will have a strong relationship, however, in our research functions as they may well be serving both functions.

As Dr. Rahmlow indicated, at the present time we have a very small staff. We are planning programs and future activities of the lab. Since our physical facility will not be finished until the early part of 1972, we will probably not have until that time requirements for a substantial number of developers and evaluators. I definitely see us in a position of assisting in the training of both developers and evaluators, as well as some other technical types of people. I had in mind some time ago the possiblity of using some students from such places as Florida State under Dr. Robert Morgan, or students, let's say, from the University of Illinois or possibly Michigan. It sounds to me as if the intent of your program would fit more closely into our needs, however.

I think it would be advantageous at some point in the near future for you or your representative and our organization to exchange ideas on a direct basis. We usually manage to get to most of the major convention meetings and, if aware of your plans for NSPI, APA, DAVI, etc., possibly we could arrange to get together. We at the Adult Learning Laboratory are anxious to further explore the implications of your program and the sharing of mutual research and development results. Please let me know what the next step is to be. Thank you.

Sincerely yours,

Danny G. Langdon

DGL/lmb

STATE OF MICHIGAN

DEPARTMENT OF EDUCATION

Lansing, Michigan 48902

October 19, 1970

JOHN W. PORTER
Acting Superintendent
of Public Instruction

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Ex-Officio

Dr. W. James Popham
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Dr. Popham:

Thank you very much for your letter describing the proposed training program in educational development and educational product evaluation. The entire project sounds quite interesting.

I am the director of a division within the Michigan Department of Education which employs forty professional consultants in various categorically funded federal programs and some general subject area consultants. We do feel a need for training experiences in the areas you suggest. However, I would be unable to indicate a level of participation until I receive more specific information about the institute, the specific types of programs offered, costs, and of particular importance, the length of time the various types of activities would require.

Due to budgetary limitations within our Department (a problem I am sure is shared by many state departments) we have to be somewhat careful about the types of experiences our professional staff can participate in on an out-of-state basis. For this reason we are naturally interested in activities as close to Lansing as possible.

Any further information you can provide at some future date will be appreciated.

I hope this information is sufficient for your purposes at the present time.

Sincerely,

Richard E. Barnhart
Director
Curriculum Division

REB:ms

DETROIT PUBLIC SCHOOLS

DIVISION FOR ADMINISTRATION OF SCHOOLS

CONTINUING EDUCATION, EVENING AND SUMMER SCHOOLS

5057 WOODWARD DETROIT, MICHIGAN 48202 PHONE 313/833-7900

October 22, 1970

Professor James W. Popham
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Professor Popham:

I am writing you on behalf of our division head, Dr. Charles E. Stewart, and the Office of Continuing Education of which the Department of Teacher Education is an integral part. We are very much interested in your training programs to prepare educational product developers and educational product evaluators. We, in the Office of Continuing Education, would like to send some of our teacher education specialists and possibly some of our school-based curricular leaders to training sessions of this kind. This, of course, depends upon the availability of funds and when these training sessions are to be held.

Would you please keep us informed of the progress of your program design. We are especially interested in the shorter, specialized courses of two weeks duration.

If you find that you would like to test your program design somewhere away from California's sunny clime, we would like to explore that possibility with you. We have had some experience with consortiums. Between 40 and 50 Detroit teachers and administrators are about to take part in a seven-day training session sponsored by the National Media Institute, it seems to augur well, and we are looking forward to it with great expectations.

We are pleased that you have informed us of your much-needed and innovative enterprise. Please keep us informed of your progress.

Sincerely,

Norman McRae

Norman McRae
Assistant Director
Teacher Education

NM:jj
enclosures
cc: Dr. C.E. Stewart
Dr. H.A. Hart

CHARLES E. STEWART, EXECUTIVE ADMINISTRATIVE ASSISTANT
JULIA M. McCARTHY, DEPUTY SUPERINTENDENT
CHARLES J. WOLFE, EXECUTIVE DEPUTY SUPERINTENDENT NORMAN DRACHLER, SUPERINTENDENT OF SCHOOLS
BOARD OF EDUCATION: PETER F. GRYLLS JAMES A. HATHAWAY PATRICK A. McDONALD ANDREW W. PERDUE
REMUS G. ROBINSON, M.D. REV. DARNEAU STEWART A. L. ZWERDLING

APPALACHIA
Educational Laboratory, Inc.
P. O. BOX 1348
CHARLESTON, WEST VIRGINIA 25325

October 7, 1970

Dr. W. James Popham
Professor of Education
University of California
Los Angeles
Center for the Study of Evaluation
U.C.L.A. Graduate School of Education
Los Angeles, California 90024

Dear Dr. Popham:

This is to respond to your letter of September 28 inquiring of our interest in assisting with training educational product developers and educational product evaluators. From sharing your request with the Laboratory Deputy Director, Dr. Robert Childers, he suggests that we respond with two important points:

1. We have difficulty in finding trained personnel and therefore would be very eager to discuss employment with newly trained individuals in both specialities.

2. There is a need among our present staff for short, intensive training sessions for developing a number of specialized skills. This might be accomplished through special workshops or self-instructional packages which your staff may produce.

To provide you further information relative to the Laboratory, I am enclosing a section of our 1971 Contractor's Request for Continued Funding on "Research and Development Stages." The significance of this is to provide you an abstract of the Model employed by the Laboratory in educational development. Additionally, I am enclosing an organization chart of the Laboratory.

We will appreciate hearing further from you.

Sincerely yours.

Benjamin E. Carmichael
Director

BEC/bj

Enclosures

EMC CORPORATION
7000 SANTA MONICA
BLVD ♣ HOLLYWOOD
CALIFORNIA ♣ 90038
HOllywood 3-3282 ♣ ♣

October 7, 1970

W. James Popham
Center for the Study of Evaluation
UNIVERSITY OF CALIFORNIA, LOS ANGELES
Graduate School of Education
Los Angeles, California 90024

Dr. Popham:

We are interested in your training program, specifically the shorter, specialized courses in educational development. There might also be a need for some of our people to further familiarize themselves with the processes of evaluating educational products.

Our firm has been a producer of educational materials in a variety of audio-visual media for many years, and enjoys a reputation for quality to the standards of the most stringent educational evaluators.

But we would always be interested in seeking further means of building the strength of our own developers and evaluators for a greater in-house capability in developing new programs.

We are still considering educational programming as presented to us by independent producers. These outside sources of original program content are usually experienced educators.

Toward these needs, we would continue to be pleased to accept proposals from those associated with you, as we have often effected a mutually beneficial relationship with educators from colleges throughout the country.

Meanwhile, I extend our very best wishes for the successful realization of all your goals in the establishment of a new training institute.

Sincerely,

Art Cole
Project Director,
FILM DESIGNERS DIVISION

AC/nn

milwaukee public schools

DIVISION OF CURRICULUM
AND INSTRUCTION

administration building
5225 west vliet st: p.o. drawer 10k
milwaukee, wisconsin 53201
area 414:476-3670

October 7, 1970

Dr. James Popham
Center for the Study of Evaluation
U.C.L.A. Graduate School of Education
Los Angeles, California 90024

Dear Dr. Popham:

Thank you for your letter of September 28 inquiring about our interest in your training program for educational product developers and evaluators. Without knowing more specific details as to objectives, schedules, costs, etc. I would be hesitant to indicate more than interest. We do have several staff members interested in these areas who might be candidates for a training program such as you are planning.

I'm sure that we would want to consider participation in the programs after details are available, especially in the shorter specialized courses.

Please feel free to send more information as your plans develop.

Sincerely,

Norman M. Rose

Norman M. Rose
In-Service Education & Volunteer Coordinator
Division of Curriculum & Instruction

NMR/esg

COMMONWEALTH OF PUERTO RICO
DEPARTMENT OF EDUCATION
HATO REY, PUERTO RICO

OFFICE OF PLANNING
AND EDUCATIONAL DEVELOPMENT

October 2, 1970

Mr. W. James Popham
Professor Education
University of California
Los Angeles, California

Dear Mr. Popham:

Your letter addressed to Mr. Plaud regarding the training program being designed at UCLA, was referred to us. Mr. Plaud is in the States for a week or so.

Although an official answer to your inquiry regarding training requirements in the two indicated fields will eventually be forwarded to you by Mr. Plaud, I wish to anticipate that we are very much interested and much in need for the type of training your letter describes. If the training program is set up for the summer 1971, it seems we shall be in a position to arrange for participation.

We would need further information regarding cost, dates, number of participants allowed, etc.

Although we are in a position to inform you some of our training needs I would prefer to include ours iwth the complete listing that Mr. Plaud and other key persons in the Department can provide. I shall do my best to assure this information reach you in the nearest future.

Sincerely,

Fanny C. Freytes

Fanny Cacho de Freytes
Director
Evaluation Office

JAM HANDY PRODUCTIONS
DIVISION OF T.T.P. CORPORATION
2821 EAST GRAND BOULEVARD • DETROIT, MICHIGAN 48211
AREA CODE 313•875-2450

October 22, 1970

Prof. W. James Popham
University of California
Los Angeles, California 90024

Dear Professor Popham:

I am replying to your recent letter to Norm Stanton as he is away on vacation.

Several of us here who are deeply involved in the creative aspect of preparing training programs for our large industrial clients were both surprised and tremendously pleased to hear of the work your group is doing in educational product development and evaluation. Certainly there has been a great void in this area, and we have hoped for many years that effective work would be undertaken at the University level.

Based on the information you have made available, we feel that the training institute you envision will be a very worthwhile activity, and one that will certainly warrant our support. Obviously, it is difficult to estimate the use we might make of this new resource until it is possible to see further details as to the nature of the training to be offered. If your work does correspond to our needs in business communication and training (particularly in marketing and management areas), we will certainly be interested in employing institute graduates from time to time, and will almost assuredly want to send a few of our people for training in evaluation.

I might suggest that the critical element in determining our interest would be the degree to which your work will lend itself to the design of highly participative education tending to follow the conference,

PROGRAMS AND MEDIA FOR BUSINESS COMMUNICATIONS / FILM • VIDEO TAPE • PACKAGED MEETINGS

workshop, case history methods. While we do produce and utilize numerous educational media items in the visual area, we do very little work with text books or typical classroom lecture situations.

We certainly applaud your efforts, and will be looking forward to hearing more from you as the program moves ahead.

Sincerely yours,

JAM HANDY PRODUCTIONS

Herbert Hall

HH:jm

cc: Mr. Norman B. Stanton

SAN DIEGO CITY SCHOOLS
EDUCATION CENTER
PARK AND EL CAJON BOULEVARDS

October 8, 1970

4100 NORMAL STREET
SAN DIEGO, CALIFORNIA 92103

CURRICULUM SERVICES DIVISION

Dr. N. James Popham
Professor of Education
Center for the Study of Evaluation
University of California
Los Angeles, California 90024

Dear Dr. Popham:

This is to indicate a definite interest on the part of the San Diego City Schools in the proposed training program for product developers and evaluators.

The San Diego City Schools has a substantial summer program in curriculum development and year around program of in-service education. We feel that product development and evaluation will be a significant addition to our program.

The San Diego City Schools also volunteers, on the basis of its experience, any assistance needed in the development of the proposal or the carrying out of the project. Please let us know if we can be of any assistance.

Sincerely,

Wm. H. Stegeman

William H. Stegeman
Assistant Superintendent

WHS:dg

SOUTHEASTERN EDUCATION LABORATORY

3450 INTERNATIONAL BOULEVARD, SUITE 221
ATLANTA, GEORGIA 30354

KENNETH W. TIDWELL
EXECUTIVE DIRECTOR

TELEPHONE: (404) 766-0951

October 7, 1970

Dr. W. James Popham
Professor of Education
Center for the Study of Evaluation
UCLA Graduate School of Education
University of California
Los Angeles, California 90024

Dear Dr. Popham:

Thank you for your informative letter dated September 28, 1970, briefly outlining the plans for a training program to prepare educational product developers and educational product evaluators.

The Southeastern Education Laboratory would be interested in having approximately six of our staff members participate in such a course in educational development during 1971, and approximately three of our staff members participate in such a course in educational product evaluation during 1971. The Lab would also be interested in employing one or two new staff members each year who have been trained by your proposed year-long basic training program in educational product development and educational product evaluation.

Please keep us informed of your activities as you continue to design and operate your new program.

Sincerely yours,

Kenneth W. Tidwell
Executive Director

KWT:BLH

ATLANTA PUBLIC SCHOOLS

INSTRUCTIONAL SERVICES CENTER 2930 FORREST HILL DRIVE, S.W. ATLANTA, GEORGIA 30315

OFFICE OF
ASSISTANT SUPERINTENDENT
FOR INSTRUCTION

October 6, 1970

Mr. W. James Popham
Professor of Education
University of California
Los Angeles, California

Dear Mr. Popham:

Thank you for your informative letter regarding the program you are designing.

The Atlanta School System would definitely be interested in utilizing the services which you have described, particularly those relating to the training in educational product development and evaluation for members of our staff.

Please keep us apprised of your progress as the program develops.

Sincerely,

R. Ruel Morrison, Director
Teacher Education

RRM:vm

COMMONWEALTH OF KENTUCKY

Department of Education

FRANKFORT 40601

October 5, 1970

Dr. W. James Popham
Professor of Education
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California

Dear Dr. Popham:

I have discussed your letter of recent date with the Director of our Division of Research and Comprehensive Planning and he feels that your proposed program has great possibilities in the training of personnel in the specialities of (1) educational development and (2) educational product evaluation. I might indicate that we have no current training requirements in these two fields of emphases.

We are very interested in your planned program and would like to have additional information as it becomes available.

Yours very truly,

Richard L. Winebarger

Richard L. Winebarger
Coordinator
Title III, ESEA

RLW:rdw

Pierre 57501

STATE OF SOUTH DAKOTA
DEPARTMENT OF PUBLIC INSTRUCTION

DR. GORDON A. DIEDTRICH
STATE SUPERINTENDENT

AC 605 224-3011

October 5, 1970

ELDON E. GRAN, Ed. D.
Assistant Superintendent
Instructional Services

Dr. W. James Popham
Professor of Education
University of California, Los Angeles
Los Angeles, California 90024

Dear Dr. Popham:

In answer to your letter of September 25, our state agency would very likely wish to send staff members for training, expecially in the area of educational development. Our work lies chiefly in identifying curriculum needs and helping schools to devise materials and procedures to meet them. I would suspect our staff would be more interested in short-term courses based on highly specific objectives, unless the long-term leads toward the doctorate. We have two staff members who are eligible for sabbaticals; both wish to pursue a higher degree.

Sincerely,

Eldon E. Gran

Eldon E. Gran, Ed.D.
Assistant Superintendent
Instructional Services

EEG:bj

DEPARTMENT OF THE ARMY
UNITED STATES ARMY INFANTRY SCHOOL
FORT BENNING, GEORGIA 31905

IN REPLY REFER TO

ATSIN-H

5 October 1970

Dr. W. James Popham
University of California
Center for the Study of Evaluation
UCLA Graduate School of Education
405 Hilgard Avenue
Los Angeles, California 90024

Dear Dr. Popham:

Thank you for your recent letter concerning your efforts in designing a new training program for educational product developers and educational product evaluators. From the description of your proposal it would appear that the United States Army Infantry School would be able to utilize the services of such training activities. Of a necessity, the availability of the program in relation to the availability of funds and appropriate personnel here at the Infantry School, at the time of the course, would have a direct bearing on our actual participation.

For over two years the Infantry School has been, and currently is, deeply involved in the systems engineering of its courses of instruction. The course design centers around developing systematically a program of instruction based on duties, tasks, and performance objectives; the proper sequencing of material; the development of standards; conditions of performance and learning; appropriate criteria for evaluation; the selection of the appropriate media and presentation techniques; and, throughout the process, the proper and effective quality control of the instructional system.

The Infantry School uses, in addition to the rather conventional means of instruction (such as the lecture, conference, and emonstration), specialized techniques and systems. Three of the 200-man classrooms in Infantry Hall (our main academic building) are equipped with student response systems (EDEX). One of the Infantry Hall's 200-man classrooms has 50 cathode ray tubes for the presentation of CAI. In addition, almost all of the classrooms in the main school complex are set up with

television receivers which are serviced by a TV facility (two studios and a mobile facility), providing for live productions, development of in-house TV tapes and the use of video tape playback (including film chain) capability. Attached brochures (Inclosure 1) give some overviews of some of these systems.

Three of the Infantry School's main courses; namely, the Infantry Officer Advanced Course, the Infantry Officer Basic Course, and the Infantry Officer Candidate Course, are structured so that the student has the opportunity to take electives--some of which are presented via the Georgia State University System, others by independent study, and still others via in-house seminars. Other courses are primarily skill type courses. Efforts are being made to move more into individualized instruction throughout all courses. Plans are under way for the development of a learning center and the expansion of some of the programmed instruction material.

To give you a picture of the framework of the Infantry School, the following are some basic facts: The Infantry School has an annual input of approximately 50,000 students per year. The average daily enrollment in 1970 was approximately 10,000; in 1971, it will be about 7,000. There are 25 distinct courses varying in length from 1 week to 36 weeks; 225 classes attend these courses. The level of students is from privates through general officers. Some of the courses are skill courses; some are broad educational courses. The staff and faculty is approximately 3,300. Over 99% of the instructional staff are military. Instructor personnel, noncommissioned officers, as well as officers, all undergo an intensive three-week Instructor Training Course.

I trust that the above discussion gives you some ideas of the Infantry School's instructional program and its involvement in educational product development and educational product evaluation. Since most of the instructional personnel, being military, have had little formal instruction in the field of education, we must train these individuals in our Instructor Training Course and in our Programmed Instruction Workshop. There is a need for the personnel involved in this training to have a sound basis in the areas you discussed in your letter. Some of the civilian education specialists concerned with instructor training and program development do have a sound background; others need some additional training. Accordingly, there would appear to be a need for some of the military instructional staff and civilian education specialists to participate in training such as I envision you are attempting to develop.

I would appreciate your keeping me informed of your progress and plans. Please keep in contact with me. You may wish to contact me via phone.

ATSIN-H
Dr. W. James Popham

5 October 1970

I may be reached via the following:

Richard S. Kneisel
Special Assistant to the Commandant -
Education Advisor
US Army Infantry School
Fort Benning, Georgia 31905

Phone: Area Code (404), Extension: 545-1332 or 545-2021.

Sincerely yours,

Richard S. Kneisel

RICHARD S. KNEISEL
Special Assistant -
Educational Advisor

1 Incl
as stated

COMMONWEALTH OF VIRGINIA

STATE DEPARTMENT OF EDUCATION
RICHMOND. 23216

October 6, 1970

Dr. W. James Popham
Professor of Education
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Dr. Popham:

Your recent letter outlining tentative plans for a training program to be offered by a consortium sounds interesting.

When your plans have firmed up we would be happy to have more information. We are cognizant of the need to provide training in product evaluation for State staff members as well as staff of LEAs. It is our intention to avail ourselves, of competent training in evaluation techniques. It may be that your organization will be able to meet our needs. Please keep us informed.

Sincerely,

Anne E. Tucker
eaw

(Miss) Anne E. Tucker
Supervisor, ESEA Title III

AET/eaw

HUBERT WHEELER
COMMISSIONER

Area Code 314
Phone 635-8125

STATE DEPARTMENT OF EDUCATION
DIVISION OF PUBLIC SCHOOLS
JEFFERSON BUILDING
P. O. BOX 480
JEFFERSON CITY, MISSOURI 65101

October 2, 1970

Dr. W. James Popham
Professor of Education
University of California
Los Angeles, California 90024

Dear Jim:

Reference your letter concerning the product development/ evaluation training sessions which are now in the process of formulating, I discussed our interest in this with the people in our division. They indicate that we definitely have an interest in this area but before we can make a firm commitment we will have to know more about cost, released time that would be necessary, etc. I realize that at this time you are probably not ready to provide that information but if at some future date you could provide it to us, I might be able to give you a more definite answer.

At this stage of the game, I think I could say, with reasonable certainty, that we are much interested but not able yet to commit.

Sincerely yours,

Don L. Gann
Director
Title III, ESEA

DLG:sp

The Commonwealth of Massachusetts
Department of Education
182 Tremont Street, Boston 02111

DIVISION OF
CURRICULUM AND INSTRUCTION

September 29, 1970

W. James Popham
Professor of Education
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Jim:

I wanted to take this opportunity to inform you that Jim Hinkle has resigned as Title III-ESEA Coordinator to assume the position of Administrative Assistant to Aaron Fink, Superintendent of Newton Public Schools. I have assumed Jim's position within the Department of Education effective as of September 22, 1970.

In addition to answering your letter, I also received IOX material last Friday. I am impressed at the quantity of the material as well as the quality from quick perusal. However, I have not had an opportunity to make a thorough evaluation of all this information.

As for the training program you envision in the summer, it sounds very exciting. At this time we are in the mist of acquiring new staff and I am not at all sure of how the training program could be utilized. However, I am excited at the concept of such a training program and am sure that I and my staff could utilize such training in the future.

A quick question in reference to the second segment of the program, Educational Product Evaluation. Do you envision the establishment of a Curriculum Analysis Materials System similar to the one devised by Bill Stevens and Erving Morrissett at the Social Science Consortium in Colorado?

Please keep in contact in the future. If I can be of any assistance to you, please let me know.

Sincerely,

Don
cm

Don Torres
ESEA Title III Coordinator
Bureau of Curriculum Innovation

DT/cm

STATE OF WASHINGTON

Superintendent of Public Instruction

LOUIS BRUNO
STATE SUPERINTENDENT

September 28, 1970

P. O. BOX 527
OLYMPIA 98501

Dr. W. James Popham
Professor of Education
University of California, Los Angeles
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Dr. Popham:

Thank you for your recent letter describing a training program which you are presently designing under a contract from the Office of Education.

We are extremely interested in both the product development and product evaluation components of this program. We are also interested in participating actively in them.

It is difficult to project the degree to which we could be involved as this would depend on certain administrative decisions occurring at another level of this agency.

Be assured, however, that we are vitally concerned with your plans and hope that you will keep us informed as you move forward.

Best regards,

DIVISION OF CURRICULUM
AND INSTRUCTION

Rich Boyd

Rich Boyd
Administrator of
Title III, ESEA

RB:ie

cc: Dr. Donald Hair

STATE BOARD OF EDUCATION

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NORFOLK 68701

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2819 VAN DORN
LINCOLN 68502

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GRAND ISLAND 68801

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JOHN K. LONDAY
4526 HARRISON
OMAHA 68117

DEBORAH H. SHEPHERD
ROUTE 1, BOX 22
LEXINGTON 68850

September 28, 1970

Dr. W. James Popham
Professor of Education
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Jim:

In response to your letter advising us of the training program you are preparing, the Nebraska ESEA Title III Office would be interested in both the Educational Development and Educational Product Evaluation training programs which you are proposing.

I feel that we could use these resources not only to provide training for members of our staff, but possibly in the future, to employ individuals both at the State level and at the project level who have received these trainings.

Would you please keep me informed of the status of these programs so that if you do receive approval, we might be able to actively participate in the activities.

Sincerely,

Jack Baillie

Jack Baillie
Administrative Director
ESEA Title III

JB:jb

BANK OF AMERICA

SAN FRANCISCO HEADQUARTERS

R. F. CHRISTIE
Vice President

September 28, 1970

Mr. W. James Popham
Professor of Education
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Mr. Popham:

Your letter addressed to W. D. Robertson regarding training analyses and development has been referred to me for reply.

I am indeed interested in your project of developing training courses on training analysis, program development, and training evaluation. This is much needed. There are too few trainers who understand this process, which, in my estimation, is essential if one is to make a contribution to his organization.

If you have any additional information I would appreciate your sending it to me. Meanwhile, I will anxiously await the development of your program and your reply.

Very truly yours,

DIMENSION FILMS
733 NORTH LA BREA TEL WEBSTER 73506
LOS ANGELES 38 CALIFORNIA

September 25, 1970

Dr. W. James Popham
Professor of Education
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Dr. Popham:

I was most interested to learn about the Center for the Study of Evaluation in your letter of September 17.

Our company specializes in the development and production of educational films and supporting printed materials. We have been following with keen interest the trend toward accountability. Several years ago one of our school advisers stated that even films such as ours, which are primarily aimed at the affective domain, would sooner or later be subject to accountability. In *fact he believed that the company which would develop* its own measuring device and publish the results along with its new products would gain a considerable advantage over its competitors.

We have, up to now, not made any such effort. Partly, we share the general dislike and apprehension of most practitioners and craftsmen who are asked to account mathematically for a process they have generally pursued intuitively. Also, we have been very skeptical of the possibility of measuring with any accuracy the complex subtle attitudinal results of viewing good motion pictures. We, for example, read with a combination of amazement, good humor and horror the reports of research in Audiovisual Communications Review.

However, we recently received from the ASCD a booklet entitled "Improving Educational Assessment and an Inventory of Affective Behavior." I also recently learned of the studies being conducted at the Stanford Research Institute, the University of Michigan, and the Russell Sage Foundation to develop master social indicators, including measures of social psychological attitudes. So apparently, whether we like it or not, the scientists are catching up with us.

On the general principle that it's better to join than fight, we would be interested in cooperating in any experimental efforts to develop evaluation methods for such educational goals as heightened sensory awareness, improved decision making in situations of value conflict, more effective response to personal stress, and greater openness to communicate personal feelings. These are all goals of some of our recent and current films; and if you can help us to determine how effective these films are, we would be most grateful.

You ask about our possible use of graduates in the future. We expect to continue doing about the same kind of thing for the next few years so that even if you can't help us now, we would certainly consider working with one of your graduates at a later time. Since we are a small company, this would not be a staff position but more likely an agreement for one job at a time.

Yours sincerely,

Gary Goldsmith
GG/dw

CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

29 October 1970

Dr. W. James Popham
Professor of Education
University of California, Los Angeles
Los Angeles, California 90024

Dear Dr. Popham:

The training program you are developing to prepare educational product developers and educational product evaluators would be of interest to us if it lends itself to skills training. We are involved in determining instructional objectives and evaluating training, with the emphasis on the student's ability to perform a particular skill at the conclusion of the training.

I can't say at this time that we would be able to send any students to the program, but we would like to be kept informed of its development. I would appreciate it if you will let me know the dates and tuition costs of the courses when they become available.

We wish you success in your new project and look forward to hearing more about it.

Sincerely,

Hugh Clayton
Chief
Instructional Support Staff
Office of Training

M. W. ESSEX
SUPERINTENDENT OF
PUBLIC INSTRUCTION

STATE OF OHIO
DEPARTMENT OF EDUCATION
COLUMBUS

DIVISION OF
GUIDANCE AND TESTING

751 NORTHWEST BLVD.
COLUMBUS, OHIO 43212
PHONE 469-4590

JOHN G. ODGERS
DIRECTOR

November 2, 1970

Dr. W. James Popham
Center For The Study Of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Dr. Popham:

From the information in your recent letter, it appears that your project designed to train educational product developers and educational product evaluators may be of interest to several of the Divisions of the Ohio Department of Education. Some of the ideas seem to fit in with the objectives of a number of projects that we have underway. The short specialized courses sound especially interesting.

The Ohio Department of Education, like many other state educational agencies, has almost no funds available for sending personnel to the types of programs that you are planning. If it is possible, I recommend that your program proposal to the U.S.O.E. include a provision for funding the participation of state educational agency employees in your programs.

Please keep me informed of the progress of your project.

Sincerely,

Frank O'Dell

Frank O'Dell
Induction Training Project Coordinator

FLO:bc

cc: John G. Odgers

STATE OF HAWAII
DEPARTMENT OF EDUCATION
HONOLULU

HAWAII ENGLISH PROJECT
1625 WIST PLACE
HONOLULU, HAWAII 96822

October 14, 1970

Mr. W. James Popham
Professor of Education
Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California 90024

Dear Mr. Popham:

Your letter to Dr. Arthur Mann relative to your training programs in education product development and evaluation of educational products was referred to me.

My Branch is charged with the responsibility of undertaking major curriculum revision, evaluation, and materials development projects. We currently have a staff which is undertaking the production of materials for a completely revised curriculum in the language arts--grades K-6. My staff and I learn the skills of education product development largely through experience. None of us has received formal training in these skills. What you describe in your letter is, therefore, of considerable interest to us as a staff development activity.

At this time what would be practical in the way of commitment to a training program would be an intensive training of a limited number of people (12 to 15) of key members of the development staff. The training period would be no more than 5 days. If such a training program could be organized for the summer months and conducted within a budget that we could manage, I believe that we would be interested.

I would appreciate hearing further from you on this matter.

Sincerely,

Shinkichi Shimabukuro, Director
Curriculum Development & Technology

cc Dr. Mann

A TRAINING PROGRAM FOR

DEVELOPERS AND EVALUATORS OF EDUCATIONAL PRODUCTS

University of California

Los Angeles

December, 1970

The products produced herein were performed pursuant to a contract with the Department of Health, Education, and Welfare, U.S. Office of Education under the Elementary and Secondary Education Act of 1965, Public Law 89–10, Title IV.

SP005104

This document was prepared and reviewed by many individuals. During the early discussions that ultimately led to the training program design described herein, Professors Marvin C. Alkin, Eva L. Baker, Evan R. Keislar, John D. McNeil, and W. James Popham all shared in contributing to the conceptual framework. Later, individuals representing the several consortium agencies involved in the training program contributed both conceptually and by preparing sections of the document dealing specifically with their organization's training role and staff. A significant section of the document dealing with instructional objectives and measurement procedures was initially drafted by Dr. Keislar. Dr. Baker contributed the bulk of the product development objectives/measurement procedures as well as several other key sections. The remainder of the document, including its final coordination, was the responsibility of Dr. Popham.

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INTRODUCTION

The proposed training program to be described in the following pages emerges from a common conviction of the numerous individuals who designed the program, namely, that the availability of high quality instructional materials can significantly enhance the effectiveness of our educational system. For the fairminded educator recognizes that our educational system is far less effective than it should be. The difficulty lies not in identifying the problem, but in devising schemes for wholesale amelioration. While increasing the availability of high quality instructional materials is not the only way to bring about improvements in education, it seems to offer certain advantages less readily identified in many alternative approaches.

Only recently have educational leaders in this country urged the federal government to provide large scale financial support for the systematic development of instructional materials. With the establishment of (1) university-based research and development centers and (2) regional educational laboratories, the U.S. Office of Education made a major commitment to support the preparation of carefully developed educational products. The potential influence of educational products has been identified by Cronbach and Suppes (1969):

> A new product can have great impact. An intellectual conclusion on education has no effect on the classroom until teachers have accepted the idea, have decided to use it, and have made thousands of detailed decisions about its day-to-day application. A new product can put the conclusion into practice with much less demand on teachers for comprehension and detailed planning, as it lays out a plan that less imaginative and less self-reliant teachers can follow. If the teachers accept the scheme, a certain minimum level of excellence in the program is thus almost assured, provided, that is, that the product itself has been thoroughly engineered.

Similarly, Glaser (1966) holds great hopes for the benefits to be derived from major efforts to develop educational products and to evaluate them rigorously:

> At the present time, the greatest potential for change seems to be in the redesign of educational procedures and 'tools.' The materials and equipment with which teachers are provided are potent means for influencing both teachers and pupils behavior. Less direct and nonspecific attempts such as changing teaching behavior per se without providing appropriate materials will be less successful.

The tremendous advantage of educational development as a vehicle for promoting improvements in education is that inherent in such development is the possibility of multiplying proven instructional advances. The products yielded by educational development must be reproducible, that is, capable of being implemented in essentially the same fashion in other educational situations. This means that these products can be disseminated widely, hence used with literally millions of children. As indicated, this type of dramatic across-the-board improvement is desperately required by our educational system at this moment.

From an economic vantage point alone, such development activities would obviously benefit the nation's schools. Almost a decade ago, Lumsdaine (1961) observed that the cost of developing instructional materials was well worth the amount of research and development devoted to perfecting them since:

> A given instructional instrument may be used for only a few minutes of any student's time, but the cost of perfecting it can be pro-rated in terms of a denominator representing thousands of students for whom the perfected instrument can be used.

Although the federal government has begun to spend funds in support of development, those involved in the enterprise recognize a grave barrier to the proper utilization of these funds. We do not yet have sufficient numbers of competent personnel to engage in development. Historically, there have been no long-standing training programs designed to produce either educational developers or those who can evaluate already-developed instructional materials. Although there are a few isolated training efforts in recent years, no large-scale programs are currently operating at a level needed to prepare the many competent product developers who are now needed and will be needed in years to come. In surveying the history of education in our country, there are numerous instances wherein major projects met with failure simply because those carrying them out did not possess the required expertise. It is proposed, therefore, that a major new training enterprise be immediately assembled to prepare the individuals who must be instrumental in a major development-based attempt to promote striking improvements in American education.

The focus of the training program design to be discussed in the remainder of this document will be exclusively upon the training of (1) educational developers and (2) individuals who are skilled in the evaluation of already developed products. By focusing upon the training of outstandingly competent product developers and product evaluators, the agencies collaborating to design this training program believe they can best contribute to the improvement of our schools.

Product Developers and Product Evaluators

Although to individuals who have been working actively in the development field the phrases Product Developer and Product Evaluator satisfactorily describe two specific types of educational practitioners, it is undoubtedly desirable to define these two specialties with more precision.

By product developers we refer to those persons who design, construct, revise and refine the numerous sorts of instructional materials employed by educators. Instructional materials include filmstrips, films, audiotapes, videotapes, programmed texts, non-programmed texts, etc. In addition, instructional materials would include any sets of highly prescriptive directions or guidelines designed for teachers with a view to producing more homogeneous teacher behavior, for example, a detailed lesson plan calling for particular teacher actions at particular points during an instructional sequence. The essential ingredient in these instructional materials is that they permit an essentially reproducible instructional sequence to occur. Such essentially similar instructional sequences can be contrasted with the highly variable instructional activities which emerge in the classrooms of different teachers, each designing and carrying out an almost unique instructional enterprise. Product developers prepare reproducible materials.

The type of developer we are talking about is not the person who has historically generated instructional materials. It is not the individual who, with more or less ingenuity, has written a textbook or produced an educational film. We are concerned with developers who are educational researchers, that is, who approach the task of product development with the anticipation that their efforts will be guided not by intuitive judgments regarding the product's quality, but by the performance of learners who have used the product. Cronbach and Suppes (1969) emphasize this difference nicely:

> There is an important distinction between mere developmental activities and development (product) research. Design and production can be carried out with no systematic, disciplined inquiry. Indeed, in the course of educational history, most curricula, teaching materials, building designs, etc., have been brought to final form through no more than casual tryout. Until relatively recently this lack of rigor was true of invention and design in all fields of human endeavor. But one field

> after another - navigation, agriculture, manufacturing, nutrition - has taken the forward step from folklore to casual empiricism to technology. Controlled measurement and observation have refined products and procedures, with correspondingly better results. Education is only beginning to emerge into a technological phase.
>
> The power that facts on performance have to guide improvement is perhaps most concretely illustrated by the methods used in preparing "programmed" textbooks. These are designed so that the pupil writes one answer after another to questions on successive elements in an explanation. According to the theory by which most programmers operate, if he makes an error the explanation was unclear in some way, or moved too fast. Classroom trials of drafts are essential to make the text effective. Any spot where errors pile up is a spot to be revised in the next draft; often the nature of the errors show just what is the source of confusion. Similar but less formal micro-evaluation can be made of any instructional material in draft form.

As we shall see later in this training program description, there are many points during the development of instructional materials where the product developer may operate as a specialist rather than as the compleat developer. For instance, certain product developers may specialize in the revision of instructional materials based on field trial data, others may emphasize the design of early product prototypes. Whether specialists or generalists, the educational product developers to be prepared by the proposed training program will be responsible for the production of those instructional materials which permit the conduct of essentially reproducible instructional sequences.

Some (Gideonse, 1970) would define the role of the developer more broadly, identifying as products to be prepared not only what we have referred to as a reproducible instructional sequence but also almost any type of tangible artifact having to do with the schools, e.g., architectural plans for school buildings, tests, schemes for disseminating new ideas, etc. We are not quarreling with such conceptions of development; we are only using a restricted definition where the focus is admittedly on the preparation of the kinds of instructional artifacts previously identified.

Turning to product evaluators, we are referring to those people who undertake the appraisal of already completed educational products. The "already completed" phrase is critical in defining the product evaluator's role, for it is apparent that during the course of preparing instructional materials the product developer engages in frequent evaluations of his not-yet-finished-product. As pointed out above, in-process evaluation based on learner performance is the key to the kind of product development we have in mind. But there are many situations in which judgments must be reached about extant products, irrespective of the procedures which were used to develop them.

For example, schools are often forced to select among competing instructional materials, perhaps none of which were developed according to the schemes recommended by performance-based developers. The decision still has to be made. Which materials should be chosen? The product evaluator we wish to train will be able to assist those who must decide whether to adopt, retain, or discard already completed instructional materials. Once more, the kinds of instructional materials under consideration are all those mentioned previously, the only criterion being, as before, that they yield an essentially reproducible instructional sequence.

Having defined the two types of educational specialists to be prepared by the proposed training program, we can see how these two compatible specialities can be coordinated in a highly efficient program. There are many points where the competencies to be promoted for the product developer will be identical or at least comparable to those sought for the product evaluator. We will capitalize on these similarities, both instructionally and economically. Since we are preparing developers and one type of evaluators

(not the whole gamut of evaluation specialists), there will obviously be basic differences in the training programs. But by focusing on this single kind of evaluation speciality, we can coordinate our two main training enterprises with both curricular and financial dividends.

The Current Demands for Product Developers and Evaluators

A recent investigation by the AERA Task Force on the Training of Educational Researchers (Sanders and Worthen, 1970) analyzed employers' perceptions of research-related competencies and shortages of personnel possessing such competencies. Interviews were held with 58 persons who either employed or supervised research or research-related personnel in numerous institutional settings. Forty-two interviewees listed the function of development as absolutely necessary in their programs. When respondents were asked to rank various research and research-related functions in order of their importance for achieving the institution's program goals, development was ranked first by representatives of regional laboratories, research and development centers, and federal agencies. Although it is difficult to sort out the need for product evaluators from the data of this AERA study, the closest descriptive function ranked was "output evaluation" which includes judging the worth of educational products. Outcome evaluation functions were ranked as very important by school districts, state education departments, independent research organizations, and federal agencies.

Two further studies by the AERA Task Force make use of the 1968 and 1969 AERA employment service data to compare competencies reported by applicants and competencies required for positions listed. Among the conclusions drawn from the 1968 data (Worthen and Sanders, 1970) was the following regarding the need for training evaluators (including product evaluators):

> There were more than three vacancies in evaluation for every applicant prepared in this area. It appears that the evaluation mandates of Titles I and III of the Elementary and Secondary Education Act of 1965 and an increasing trend toward accountability may have had an effect in 1968 and necessitated more attention to training in this area.

A similar analysis based on 1969 AERA (Oldefendt and Worthen, 1970) employment service data reflected enough discrepancies between applicants and vacancy descriptions to suggest possible trends. Specifically, "the number of vacancies in development increased in 1969 . . . ." Regarding evaluation, the needs were increasing. "In 1968 there were three openings for every applicant with skill in evaluation. In 1969 this discrepancy rose to almost four to one."

Additional evidence of the manpower shortage is provided by Francis Chase's (1968) report regarding the difficulties that educational laboratories encountered in securing trained personnel to carry out the functions for which they were responsible. He observed that the laboratories and centers became aware that the knowledge base on which they were to work was weak and that performance skills and technologies were poorly developed. He contended that a majority of the labs and centers increased staff appreciably within the past two years but that few could yet be said to have capabilities adequate to the tasks involved in the accomplishment of their missions. One of the urgent needs which Chase identified was to establish systematic programs to increase the capabilities of those employed.

In the oft-cited Clark and Hopkins (1969) manpower analysis, it was observed that the demand for research, development and diffusion personnel in 1974 will likely be five times the 1964 demand, but that the 1969 annual training output is approximately the same as it was in 1964. Though the nature of manpower demanded has also undergone extensive fluctuation, the field's response to meeting the need for these competencies has been to "replicate in current training programs the relative proportions of personnel

found in the 1964 R, D, and D community." The authors conclude by predicting that the vacuum in personnel will be filled by whatever talent is available, regardless of their qualifications. New products and programs will suffer, as will measurable progress in R, D, and D.

From a recent major USOE publication (Educational Research and Development in the United States, 1970) we find a similar pessimism about the numbers of individuals who will be able to staff the nation's R and D efforts:

> One inescapable conclusion is that a heavy press currently exists on the trained personnel available. Some of this slack has been taken up by the entry of personnel into educational research from other academic disciplines and from industry. Some has been taken up by the addition of a growing number of recent doctoral recipients. A great portion has been taken up by on-the-job training of individuals, particularly in the field of development, dissemination, and diffusion, who have assumed newly identified roles in educational research and development. Finally, the increase in the manpower utilized is also partially explainable in terms of the increased scale of R & D work which has contributed to greater cost and a larger number of lower technical roles without necessarily creating additional demand for highly trained researchers. The manpower supply situation does not appear likely to improve very substantially as one looks at the projected outputs of the present level of educational research training supported by USOE. While the doctoral programs will be supplying 250 to 300 new people a year and larger numbers are receiving short-term training, these numbers will be insufficient to sustain any large-scale expansion of R & D effort.

Glaser (1966) emphasizes the desperate need for the creation of new roles in the field of development:

> In education, the dilemma is that educational researchers are in short supply, and the individual trained to do research and the individual capable of doing developmental work is one and the same person . . . . At the present time, I see little other course than individuals doing double duty so that theory, research and practice are mutually influenced.

Evans (1969) notes the inadequacy of current training efforts for the developer whom he views as the "aspiring educational technologist" who hasn't enough money to spend to receive an M.A. or Ph.D. nor enough time to waste on workshops that are inadequate for his ideas. Most of the courses available to him are irrelevant and the possibility that a degree-granting institution will offer a diploma in instructional technology is slim.

But while there is a considerable amount of data indicating a major need for training programs to prepare product developers and evaluators, the designers of the current program were anxious to see whether there would actually be takers, that is, whether there would really be those agencies or individuals who would take advantage of our consortium-based training program if we were to get it under way. Accordingly, in mid-September we sent out exploratory letters to over 300 agencies and individuals briefly describing our proposed training program and asking them whether they could foresee any likelihood that such a training program would be of use to them. The response was gratifying. Of the 91 responses, 79 agencies or 87 percent indicated a definite need for such training programs and a high probability that they would use the service. In Appendix B, all names of positively responding individuals or agencies are cited.

Training Program Rationale

Briefly, the training program is designed to produce educational product developers and product evaluators who are results-oriented. A results-orientation will be seen not only in the types of skills we provide for trainees, but in the way the training program itself is designed and evaluated. Our concern for process will be guided by outcomes. Innovative training vehicles may be interesting, but they will have to yield demonstrably superior results with trainees before they will be judged satisfactory.

The product developers and product evaluators we prepare will possess a similar results-orientation. The developers will not be satisfied with instructional materials, no matter how attractively packaged or how highly esteemed by scholars, unless those materials produce measurable behavior changes in learners. The evaluators will view the potency of materials to produce measurable changes in learners as the primary, albeit not exclusive, criterion by which to evaluate the quality of those materials.

The "results" which will be sought by the trainees are, as has been implied above, measurable modifications in the behaviors of the intended learners. But lest this conception of results be considered a restrictive one, it should be noted that the types of measurable modifications under scrutiny would be wide ranging and diverse. We are interested in far more than whether a learner can make correct marks on an IBM test response sheet. The results-orientation we will promote will find our product developers and evaluators teasing out subtle changes in learners through a host of both customary and esoteric measurement tactics. Some of these subtle learner modifications, for example, those dealing with affective outcomes, may be far more critical than more classical achievement test dimensions. If we are to prepare tomorrow's educational developers, for example, we must equip these people to consider the affective educational goals not yet popular, indeed, perhaps not yet even considered.

This results-orientation, which we shall be guided by as trainers and which we shall promote in our trainees, requires that both trainers and trainees become inordinately skilled in detecting the wide range of results which can reflect suitable learner progress. A significant segment of our training program will be devoted to providing trainees with such competencies. For the most part, this training can be identical for both product developers and product evaluators. But even more importantly, perhaps, the consortium training staff must constantly and systematically be searching for new techniques of measuring the kinds of competencies, attitudes, interests, etc. which will enable our trainees to function more effectively. We must scrutinize our own training efforts in light of the most defensible set of results.

The current national emphasis on educational accountability is quite consonant with our aspirations for the trainees as well as for ourselves as trainers. We wish to be rigorously judged on the basis of the results the trainees subsequently produce. We want our trainees to apply the same standards. Educational accountability is a phrase which correctly conveys the orientation of the proposed training program.

Central to our undertaking as a consortium-operated training program is a commitment to study the efficacy of this type of training structure. All agencies within the consortium possess unique capacities to train either educational developers or product evaluators. We believe that pooling the training resources of these many groups will produce a markedly more powerful and efficient training program. We believe that the basic structure of this training consortium can be applied elsewhere in the U.S. to comparable training problems. But we are results-oriented. We will have to see whether our optimistic predictions are realized. In other words, while our chief interest will be in carrying out the best possible consortium-operated training program, we shall also be carefully studying the worth and potential exportability of the type of training consortium we have assembled.

CONSORTIUM AGENCIES

In this section the various agencies constituting the training consortium will be identified and briefly described. In addition, the chief role of each consortium agency in the training program will be described. It should be noted that many of these agencies are by far the most competent such groups in their respective fields. In the jacket inside the rear cover we have included selected brochures, reports, and comparable documentation to illustrate more completely the excellence of the consortium agencies. In alphabetical order, then, these are the consortium units:

American Tape Duplicators

Description. American Tape Duplicators (ATD) is one of the nation's largest firms engaged in producing audio tapes of high fidelity for music and voice reproduction. It produces materials for monaural and stereo reel-to-reel and cassette tapes of various sizes and lengths.

ATD produces, packages and ships all of the audio-tape programmed learning materials distributed by Rheem-Califone throughout the United States. It maintains sound studios and is one of the pioneer firms in the production of programmed educational software.

Role. The specific roles of the ATD are as follows:

a. To train programmers of individual and group materials of programmed instruction for audio tapes, film strips and combined AV hardware to perform the functions of:

   1. conceptualizing
   2. scripting
   3. editing
   4. recording (including the use of studio equipment)

b. editing of taped masters

c. mastering of tapes for duplication

d. packaging and production of packages

e. shipping and record keeping

f. field testing and experimental design

BFA Educational Media

Description. BFA (Bailey Film Associates), a division of the Columbia Broadcasting System, produces and distributes educational films, filmstrips, super 8mm loops and cartridges, study prints, and multi-media kits. BFA's present distribution is almost entirely with public and private schools in the United States and Canada; however, they have worldwide representation through both their own sales program and that of CBS Enterprises. Bailey Films and Film Associates of California, both well-established in the school media business, were acquired by CBS in 1966. Soon after, the two companies merged to become BFA Educational Media. BFA now has over 150 employees, including 25 sales representatives in the field throughout the U.S. and Canada.

Of most relevance to the consortium's training program is the character of the Product Development Department and the modus operandi of BFA with respect to production. Editors, all specialists in curricular areas who possess considerable film evaluation experience, generate or react to specific film ideas with prospective producers.

Editors then recommend fuiding for productions based on their past experience, feedback from school consultants, and information from field sources. Product Development personnel are responsible for approval of the initial script and for evaluation and supervision at several intermediate steps. Working in conjunction with BFA's production staff, they therefore supervise the overall production. The actual production of media, however, is usually done by independent producers. Once a production is completed, BFA handles all details of advertising and distribution. BFA has had extensive experience in assessing curricular needs of school districts throughout the nation, and in responding to those needs with media carefully designed for the strengths and limitations on classroom use. Members of their Product Development staff have major competencies in the production and evaluation of educational media with respect to content, objectives, relevancy to the curriculum, intended usage, effectiveness in reaching the intended objectives, and comprehension of the aesthetic elements of visual communication.

Role. Briefly, BFA's major training contributions within the consortium will involve training in prognosis and in media design.

Crucial for the product developer is the ability to critique an existing production with respect to its probable success in changing viewer behavior. BFA would supply training which would enable the trainee to dependably predict the following about a production: visual (filmic) impact, clarity of content for the viewer, whether or not it will probably affect behavior in the way the objectives state it will, suitability for the intended age level, and whether or not it meets a standard of communication for the most demanding of teachers.

Media design, decisions about which format, length, what concepts, etc., follows function and need. Much that BFA has to communicate to the trainee about design for media will follow mastery of the skills associated with accurate prognosis. In addition, BFA's production staff and the independent producers with whom the firm works, will help the trainees with specific design problems.

Trainees will also become familiar with problems and methods of marketing, packaging, and distribution which have indirect bearing on final product design.

CTB/McGraw-Hill

Description. CTB (formerly, California Test Bureau) is now the testing and evaluation division of the McGraw-Hill Book Company. It offers a comprehensive range of materials and services to schools to meet their evaluation needs for instruction, counseling, curriculum management, research resource allocation, and placement.

CTB publishes standardized, norm referenced tests of achievement, aptitude, adjustment attitude, interests and study skills. It also publishes programmed materials for self-instruction in basic skills. It is planning the publication of a series of criterion-referenced prescriptive inventories in the basic skills and the development of computer-based instructional systems.

CTB provides machine-scoring services for its tests, producing sophisticated reports for the individual student, the classroom teacher, the counselor, the school administrator, and the student's parent.

CTB's Evaluation Services include the designing of evaluation programs and the providing of evaluation assistance to school districts.

CTB's Research Services include consultation relative to sampling design, statistical analysis of data, and brief descriptions of the results of studies.

CTB has more than 20 evaluation consultants, all with higher degrees, working with school personnel in assigned areas throughout the country. In the home office there are

25 professional employees, also with higher degrees, working on product development and evaluation.

Role. CTB will provide one-semester internships in its home office in Monterey, giving the intern an opportunity to participate in all aspects of development of both norm-referenced and criterion-referenced tests and related instructional materials, including the writing, editing, and analysis of test items, the writing of manuals, the designing of norming procedures, the planning of diagnostic and analytic report forms, the design of answer sheets, the scoring of tests, the production of test booklets, and the completion of a market planning guide.

The intern would gain experience in the development of instructional materials related to the criterion-referenced prescriptive inventories. He would also review existing evaluation models, apply the practice of an evaluation model to designing an evaluation for a school district, gain some experience with the concept of monitoring educational evaluation, item sampling of tests and other specific tools used in evaluation, gain some experience in describing evaluation data and an opportunity to become involved in current research studies.

CTB would also provide staff members for instruction in test development, computer-based systems of prescriptive inventories with related instructional material, test research, evaluation services, processing of used tests, and production of test booklets. Such instruction could be given in a one-week or two-week seminar at the Laboratory or at CTB's home office.

Center for the Study of Evaluation

Description. The Center for the Study of Evaluation (CSE) is a research and development center funded by the U.S. Office of Education and has been in operation since 1966 at UCLA. The Center, the only one of its kind focused on the specific analysis of the educational evaluation process, has been instrumental in recent years in advancing theoretical and practical knowledge regarding the evaluation process. The mission of the Center for the Study of Evaluation is to produce new materials, practices, and knowledge leading to the development of systems for evaluating education which can be adopted and implemented by educational agencies. The scope of activities at the Center includes the following: (1) the development of procedures and methodologies needed in the practical conduct of evaluation studies of various types; and (2) the development of generalizable concepts of evaluation relevant to different levels of education. A more elaborate description of the Center's operation can be located in an inclusion (inside back cover) which gives the most recent annual report of the Center for the Study of Evaluation.

Role. The primary mission of the Center for the Study of Evaluation in the training program will focus on the preparation of product evaluators, although CSE will also be involved in the formative evaluation training for product developers. The Center for the Study of Evaluation is frequently called upon to offer assistance to those involved in educational evaluation, and while it is not the role of CSE to serve as a consulting agency, there have been frequent occasions wherein staff have become conversant in the practical problems associated with product evaluation. As a consequence of these interactions, as well as their more general inquiry into evaluation in its broader aspects, CSE personnel will play a prominent role in the training of product evaluators.

Consolidated Film Industries

Description. Consolidated Film Industries is a major motion picture film processing laboratory and a winner of numerous Technical Awards from the Academy of Motion Picture Arts and Sciences serving both the entertainment (theatrical) and non-theatrical fields. While Consolidated Film Industries (CFI) does not produce the films

it processes, it does offer consultants who will assist a producer who has questions of a technical nature. CFI also has an in-house title and optical department which, using the most sophisticated techniques, is capable of innumerable photographic effects and title designs. CFI has been a leader in its field for many years as can best be illustrated by the "CFI Is First" list which appears in the jacket inside the rear cover. This leadership and inventiveness has attained for CFI an international reputation for excellence and the highest possible caliber of workmanship. The producer has a choice of shooting his material in either 35mm or 16mm from which, if necessary, 8mm or super 8mm release prints can be made to satisfy distribution requirements. The technical expertise that reinforces the feature motion picture producer is made available to the filmstrip producer and the non-theatrical film producer.

Role. The role of Consolidated Film Industries can best be described as consisting of two main categories: (1) To assist the production company in pre-production, actual shooting and the various processing stages of his original film elements; (2) To assist in post-production with regard to titles, opticals and art work. CFI's essential objective with regard to the training consortium, would be to acquaint producers in the techniques of, and enhance their technical knowledge of, motion picture and filmstrip production.

Educational Development Corporation

Description. Educational Development Corporation (EDC) of Palo Alto, California, develops instructional materials for all ages of learners. EDC produces programs for the school market from kindergarten through college. In addition, EDC develops materials for teachers, industry, and the home market.

Working in close cooperation with consulting experts, the EDC editorial and graphic design staffs convert ideas into products through writing, recording, designing, on-site testing, revising, managing manufacture, and shipping - all according to the needs of clients. EDC's success in developing innovative educational ideas that work, as seen in the many products bearing their name, stems from their ability to assess the value of an educational idea, attract and manage talented contributors, and organize the resources necessary to convert the idea into effective materials of instruction.

Role. In general, Educational Development Corporation will supply the required expertise of a publisher conversant with the preparation of printed products. EDC would engage directly in the training consortium at least the following three ways:

A. Assist in devising the training program curriculum by:

   1. Listing criteria useful for trainees in assessing competencies and needs of learners with respect to materials.

   2. Suggesting criteria useful for trainees in judging appropriateness of audiographic materials to meet the needs of learners.

   3. Developing a taxonomy of characteristics for different kinds of learning materials.

B. Develop sequences of instruction, including on-site experience for trainees, in the fields of EDC expertise.

C. Evaluate and suggest modifications for improvement of the training program.

Graduate School of Education, University of California, Los Angeles

Description. The Graduate School of Education of the University of California, Los Angeles is a major professional school at UCLA and includes primarily faculty members in the UCLA Department of Education as well as a limited number of faculty members in other departments of the University. The Department of Education within the Graduate School of Education is authorized to offer the following degrees: M.A., M.Ed., Ed.D., and Ph.D. A faculty of more than eighty professors and a number of ancillary personnel, headed by Dean John I. Goodlad, and Associate Dean C. Wayne Gordon, places the School of Education in a position to offer not only a number of individual faculty members who are anxious to participate in the proposed consortium, but also the official degree-granting capacity of the institution.

Role. The Graduate School of Education brings two unique training programs to the consortium, both of which have already been established in previous years. The Product Research Training Program, established in 1966, offers the masters and doctors degree in the field of instructional product development. This program, initially stimulated by support from the Educational Research Training Program of ESEA Title IV, Research Training Branch, U.S. Office of Education, has already produced a number of doctoral degree holders in the field of product development. At the time of its establishment it was the only doctoral program in the country specializing in product development and for several years thereafter remained alone in this role.

The graduate program in Educational Evaluation was established in 1968 and offers a doctors degree in the field of educational evaluation. This program, closely associated with the faculty who work within the Center for the Study of Evaluation, prepares doctoral degree holders who have special competencies in the field of educational evaluation.

It is anticipated that both of these programs, because of their degree-granting potential, can be coordinated very effectively with the consortium-based training program. We anticipate that many of the courses now offered in the degree training programs can be readily adapted to the proposed training program.

Institute for Educational Development

Description. The Institute for Educational Development (IED) received its charter as a non-profit educational corporation from the Board of Regents of the state of New York in 1965. Its founders represented national leadership in education, industry and government. Early assistance in the formulation of IED as an operating institution came from Educational Testing Service and private foundations. In its short history, IED has grown largely independent of philanthropic support through performance of contracted research and development services on a national basis, to educational institutions, government (local, state, and federal), foundations and industry. The principal office is in New York City; the west coast office is in El Segundo, California, near Los Angeles.

IED is committed to a search for rational, cooperative and creative changes in education, especially in cities and situations affecting minorities and the poor. The Institute was created at a time in history when a critical re-examination of our educational institutions was occurring, a process accompanied by a general spirit of dissatisfaction in our society at large and in the profession of education itself. Just at that time a greatly increased federal engagement in elementary and secondary education was taking place. Simultaneously, a new and enlarged interest on the part of industry began to be expressed, for reasons of social responsibility as well as self-interest.

In that context IED was conceived as a new instrument for "closing the circle between education, industry and government." Their work in the past few years has focused increasingly upon research and development in four general categories:

1. Assessing and improving inner-city education.

2. Advancing educational technology.

3. Facilitating relationships between the business community and the schools.

4. Increasing the effectiveness of school organization and administrators.

Role. Training at IED would include involvement in at least one evaluation effort and one product development activity. The Institute is currently involved in developing and field-testing materials and procedures to supplement Sesame Street viewing in inner city homes.

Through involvement in this effort, trainees would gain competencies in:

Developing self-instructional home study guides for parents and preschoolers.

Field-testing and revising these materials.

Construction and administering criterion instruments designed to assess the effectiveness of the products and the process.

Examining the relationship between a mass medium (television) and the individualized home study materials.

Another area of involvement for trainees would include training in project and product evaluation as reflected in Special Education and Bi-Lingual education activities. The trainees would gain competencies in:

Design, application, and revision of project and program-wide survey instruments designed to assess the products of these training programs.

Evaluating disparate product efforts with different goals and objectives.

Analysis of large data bases containing product outcome data for many projects.

KCET

Description. KCET, Channel 28, is a public television station operating in the community of Los Angeles with an effective radiated power of 1,200,000 watts, the most powerful signal in Los Angeles. The TV signal covers Los Angeles, Ventura, Santa Barbara, Orange, San Bernardino, Riverside, San Diego, and Kern Counties. KCET is a non-profit organization corporately entitled Community Television of Southern California. KCET broadcasts pre-school, school and college level programs during the day, children's programs in the late afternoon and cultural, public affairs and entertainment programs of network and local origination during the evening hours. KCET is one of approximately 200 such stations in the United States.

Role. Competencies to be obtained by trainees via KCET's involvement are dual. The KCET staff envisions two basic areas for program development, one in the area of developing priorities in instruction and proposal ideas for potential funding, and the other in the area of TV or film script development and production. Participation in production would probably be as a segment producer of a larger program format. Anticipated competencies in program proposal ideas and funding follow. Trainees will be able to:

1. Identify relevant instructional priorities for potential program funding.

2. Write program proposals appropriate for the instructional priorities developed.

3. By reviewing grant proposals that were accepted or rejected for funding, identify segments of the proposals that helped to promote their acceptance or rejection.

4. Identify effective interest promoting devices that can be utilized in television or film production to get and hold viewer or learner attention. (Because of the vast numbers of people that view TV, most turn on a set to be entertained because of their own preconceived ideas about TV. They are usually uncommitted to what they are viewing and if bored, can flip to another chanel instantly. The product developer has no captive class situation here. This usually implies that he has to build attention and transform that attention to involvement which can develop commitment.)

5. Be able to develop appropriate supplemental learning material, if necessary, in book, audio, slide, etc. format to promote material review for learners.

The Los Angeles County Superintendent of Schools

Description. The Los Angeles County Superintendent of Schools Office is the intermediate educational unit serving 95 local school districts; the State Department of Education; and numerous county, state, and federal agencies with activities in the educational field. The current annual budget is approximately $22,000,000 and the full-time personnel number about 1,100. The primary responsibility of the office is to serve in a leadership and coordination role with the districts of the County and to act as a liaison between local districts and the state. The Office is also engaged in direct operational programs in the fields of special education, and special schools for juvenile delinquents. Classes are held in 76 locations and served by a staff of 450 teachers.

In addition to the coordination and leadership responsibilities, the County Office monitors state and federal programs, provides task forces to assist districts with special problems, initiates and designs research and evaluative programs, and furnishes expert consultant help to school district operational procedures. The County Office serves under the jurisdiction of a seven member appointed Board of Education, and County Superintendent, Dr. Richard M. Clowes.

Role. The Los Angeles County Superintendent of Schools Office can provide for the necessary liaison with school districts in Los Angeles County and, probably, in surrounding counties. This would provide settings in the real world with which trainees can work. In addition, the County Office has many skilled people who could work with the trainee and help develop whatever specific skills the trainee is to learn. The Los Angeles County Office could also provide meeting rooms, occasionally, where discussions could be held. The Los Angeles County Superintendent of Schools has several operating programs such as the film library, television, radio, special education and special schools. The County Office also has subject matter specialists. This consortium unit could provide information and training in areas of previewing, selection, purchasing, producing, evaluating, handling, booking, and the like.

System Development Corporation

Description. System Development Corporation (SDC) with headquarters in Santa Monica, California is one of the world's leading developers of information and training systems. During its 13-year history, SDC has performed over 1400 contracts totaling more than one-half billion dollars. SDC clients include more than 50 departments and civilian agencies of the Federal government; military agencies and NASA; several dozen state and local government agencies; and numerous universities, hospitals and libraries. For this wide range of customers SDC has designed and developed computer-based management systems; designed, implemented and conducted education and training programs; and, has applied specific skills in such areas as system analysis, training, consulting, engineering, simulation and computer programming. SDC's staff of 200 includes information processing, human factors and operations research scientists, computer programmers and engineers, holding nearly 100 doctoral, 300 masters and 1100 bachelors degrees.

Work in educational research and development is conducted within the Public Systems Division by the Education Systems Department (ESD). The ESD staff of 30 professionals is currently engaged in projects for the U.S. Office of Education, the Ford Foundation, the National Science Foundation, the Job Corps and several state and district educational organizations. The ESD staff has accomplished or is presently engaged in work on instructional materials design, computer-assisted instruction, educational data processing system design and development, educational program design, development and evaluation, in-service teacher training, development and operation of educational seminars, residency programs and short courses.

Role. System Development Corporation will teach prospective education developers and educators in the use of data processing technology to develop and evaluate educational products. At SDC, students will acquire competency in the design, production and evaluation of instructional products that either use a computer as a medium--as in computer-assisted instruction (CAI)--or depend heavily on a computer to aid in the development or evaluation processes. Trainees in educational product development will gain skills in:

1. production of lesson materials in sciences, mathematics, computer sciences, etc. in which the computer is a tool for students to simulate or model a process.

2. preparation and administration of CAI lessons on computer using author languages such as SDC's own PLANIT. Students will gain experience in analyzing content materials, in formulating lessons, putting lessons into a machine and testing the materials on actual students.

3. use of a computer as an aid in generating lesson materials. Programs exist or are currently being developed at SDC to generate a large number of specific items from a data base of item types and pattern specifications. For example, many items of the form: "You get___dollars a day for___days. How many dollars do you get in all? a___, b___, c___, d___, or e___." can be generated by a machine. A major contribution to be made by product developers of the future may be the discovery and specification of item types for machine production.

Trainees in educational product evaluation will gain expertise in:

1. planning for the use of data processing as an aid in evaluating educational materials. Performance data at the specific objective level for many students can easily result in a data base with thousands of entrees. Data processing is a necessity in such cases.

2. defining categories of information to be abstracted from a data base is an important evaluation skill. SDC will make computer time and many of its data management systems available so that a student can gain experience in "massaging" performance data.

3. using an existing instructional management system that was developed for the Southwest Regional Research and Development Laboratory. This system provides a language for describing courses; scores and analyses mastery tests using an optical scanner and computer; prescribes remedial instruction; and provides several types of management reports that can serve in evaluating instructional materials.

Department of Theater Arts, University of California, Los Angeles

Description. The Department of Theater Arts embraces theater, film, television, and radio and has full facilities for instruction in all of these areas. The Theater Division has two theaters and a puppet workshop, all capable of being used for film and

television. The Film and Television Division includes three large sound stages, 35 editing rooms, mixing room, two projection rooms and a projection theater, three television studios, two mobile units, and an animation workshop. Because of its strategic location near Hollywood, the Department attracts many students with professional ambitions, and this is reflected in the high calibre of their work. The Department has won several international awards for its student films and is widely recognized for the high level of its work in theater and television production. Devoted entirely to instruction in the theater arts, the Department has a faculty of 53 full-time teachers, 30 teaching assistants, and lists over 150 separate courses.

Role. Generally, the idea is that intensive skills classes and workshops would be conducted at the film and television studios of the University. The internship program would be provided by the cooperating professional agencies which are not set up for training but which offer splendid opportunities for the trainee to observe the workings of an ongoing professional operation. All trainees engaged in product development would take the workshops in writing, film, and television production. In addition, they would be given courses in evaluation and utilization as well as observation experiences under the internship program.

It is important that early in the year all students in product development have the experience of visiting several classrooms to see film, television, and other teaching aids being utilized in the classroom. As a consequence, they should be able to conceive of their products not as studio productions, but as presentations before a classroom, and imagine hypothetical pupil reactions to various elements of their material. When their working product is completed, hypotheses can be actually tested and the validity of their hunches can be confirmed or rejected.

Regional Educational Laboratories

The consortium will wish to use developmentally oriented regional laboratories primarily as internship settings. Three regional laboratories in relatively close proximity to the consortium have indicated a willingness to establish such internships for our trainees. These are the Southwest Regional Laboratory for Educational Research and Development in Inglewood, California; the Northwest Regional Laboratory, in Portland, Oregon; and the Southwestern Cooperative Educational Laboratory in Alburquerque, New Mexico.

It should be noted that a number of key staff members in the proposed consortium have an excellent working relationship with the nearby Southwest Regional Laboratory, principally, Drs. Eva Baker, Evan Keislar, John McNeil, and James Popham, all of whom have served either as consultants or as members of that laboratory's professional staff.

TRAINING SEQUENCES

Because of the two distinct emphases of the proposed training program, i.e., product development and product evaluation, it will be more clear if the training sequences associated with each are detailed separately. We shall first examine the sequences designed for product developers, then those for product evaluators. In a subsequent section the specific objectives will be presented along with a description of the measurement procedures to be used with each objective.

Training Sequence for Product Developers

There will be two basic sequences designed to train product developers. Although there are other differences between these two sequences, we can draw a distinction on temporal grounds alone, namely, long term and short term.

The long term sequences will occupy one full-time calendar year for the trainee. The bulk of the training will take place either on site at the location of the consortium agency's plant/office or at the Consortium Training Laboratory. Short term sequences will be ad hoc in nature and will range from a few days to a few weeks in length. Whereas the long term training sequence will intensively cover all phases of development, the short term effects may focus on only a single phase, e.g., product tryout.

On Site Training. Certain training for developers must of necessity be undertaken where physical facilities permit the provision of realistic experience with various sorts of equipment. For instance, the developer who wishes to become facile in the use of educational television must really learn to work with the most current television equipment. Promotion of desired competencies cannot be accomplished exclusively through the use of textbooks. Thus, consortium units such as Consolidated Films Industries, will design and conduct one phase of the training program at the CFI plant in Hollywood. Economic considerations will be combined with availability of competent training personnel to govern the number and duration of on site training components. We must be judicious so as not to interfere with the normal operations of consortium members. Yet, there are some sorts of training which definitely must be conducted on site and could not be carried out at the Consortium Training Laboratory. Each of these will be subsequently described in detail.

Most training will occur in the Consortium Training Laboratory. Since its operation will be integral to the proposed training program's success, a description of how it will function and, indeed, why it is necessary will not be provided.

A number of key staff members in the consortium have considerable experience in training educational developers, both within the more common confines of a university setting as well as within mission oriented agencies such as regional educational laboratories. There are significant disadvantages in training developers in either of these settings. To avoid these disadvantages we wish to establish a separate training laboratory with its own special goals, namely, the preparation of educational developers and product evaluators.

Training in the University. What are the problems of training individuals within a University setting? The principal problem is that the university has had to devise mechanisms, administrative and otherwise, which are suitable for dealing with the diverse array of educational programs carried on within the University. There are constraints, for example, dealing with the modification of course content. Changes must be approved by the properly designated faculty and administrative monitoring groups. In general, these mechanisms are good, for they prevent curriculum abuses. Yet, they are most pertinent for established disciplines where content structure has been rather well established. For fields where content clarification is emerging, such as is the case with respect to the fields of product development and evaluation, these mechanisms prove cumbersome. To illustrate, what if we wish our trainees to secure the skills provided in only about one fourth of a standard statistics course? Can we enroll them for 25 percent of the course? Obviously not. There is a tendency under such circumstances for the faculty adviser to sign a student up for the whole course, rationalizing that the rest of the course (the irrelevant 75 percent) will be "good for him." This correctly illustrates the difficulty of tailormaking a training program for a new specialty within the university setting. The real or sometimes imagined barriers to particularization prevent one from designing a truly relevant training sequence for new specialties.

This should not suggest that there are no particularly useful instructional experiences available from the university which are just right for our program. Certain course offerings, for example, UCLA's Education 433A, Instructional Product Development, are obviously on target. Yet, to conduct the major training on campus would not permit the requisite flexibility for the training effort. We need a separate training site such as the Consortium Training Laboratory.

Training at a Regional Laboratory? What about conducting the training primarily at the location where product development is taking place, for example, at a regional educational laboratory? Surely, since the chief mission of several regional laboratories is to produce products, then it would make sense to conduct training for developers at the place where development is occurring. But it is unwise to carry out training at a mission oriented regional laboratory. What appears to be an advantage is precisely the deficiency which precludes the conduct of a truly effective training program. The primary mission of the regional laboratory, namely, development, gets in the way of the training of developers. Understandably, an institution set up to develop products will focus its energy, its best staff, and its major funds, on developing products. Training of developers is viewed as a luxury that may divert key resources from the primary mission.

This indictment is not based on idle speculation. An actual account of a staff training effort at a USOE supported regional educational laboratory will be illustrative. During 1966 and 1967, shortly after its establishment, one regional laboratory undertook an ambitious program to train its development staff. Most of the people hired for the new laboratory were bright, but possessed classical educational research backgrounds and precious little conversance with the development process. Detailed sets of product development objectives were devised which reflected skills to be possessed by the competent developer, test measures to assess each objective were prepared, sets of new self-instructional materials to cover most objectives were written, a glossary of technical terms was produced, and series of related readings dealing with product development were identified. These materials were coordinated so that a newly hired laboratory employee would have to take a pretest covering the objectives, then be given a diagnostic profile sheet indicating which self-instruction programs should be read in depth and which could be completed in abstract form if his pretest performance had been sufficiently high. At the conclusion of his study the new employee completed a post-test covering the same objectives and once more was given a profile sheet showing needed areas of remediation.

The lab's staff training for its developers was working well. People were beginning to use the same language in describing developmental tasks. Many of the recommended development tactics were being employed. But the training took one whole week! Second level laboratory administrators resented the fact that their newly employed staff members were spending a week on concerns other than development. Thus, in 1968 a gradual erosion of the staff training program took place whereby staff training responsibility was given to the directors of administration sub-units. For a time some of these people tried to carry on systematic training of their people, using the tests and self-instruction materials which had been prepared. As the months wore on, however, the intensity of staff training degenerated to the point where it was sporadic at best and nonexistent for the most part.

This actual account of an aborative attempt to train developers at a regional educational laboratory was not presented with a view to criticize any laboratory's leadership. They succumbed to legitimate pressures for mission accomplishment. In such situations training becomes a badly treated stepchild. And this abortive training effort occurred in a particularly strong regional laboratory with extremely enlightened leadership. It wasn't the laboratory's fault; it was in the nature of the mission orientation.

It is imperative, therefore, that training occurs where there is plenty of real development actively underway, but where the primary mission is to train developers and product evaluators. This will be the situation at the Consortium Training Laboratory.

The Consortium Training Laboratory. Located off campus but near enough to UCLA to draw upon the staff resources of that institution, the Consortium Training Laboratory will be the place where the bulk of training takes place. A number of multiple office facilities are available near UCLA at quite reasonable rental prices (circa 35 cents per square foot) for one year or longer lease arrangements. One of these locations with easy access parking for visiting faculty from consortium member staffs will be selected for the Laboratory.

There will be several interesting features of the Laboratory. For one thing, there will be product development activities underway at all times. But the principal mission of the Laboratory will be to instruct trainees, not prepare products. The Laboratory will prepare instructional materials in several media to both provide realistic experience for trainees and, after two or three years, to produce revenues through sales so that the training program can be partially self supporting. We will produce materials, dealing with the general field of evaluation at the outset, and sell these through a commercial publisher on the basis of whatever USOE royalty policy is currently in effect. At the present, for example, half of the royalties earned from the sale of such materials could be returned to the training program to defray costs. Yet, in a choice between doing something that is good for the products under development or good for the trainees under preparation, we will always opt for the latter.

A second feature of the Laboratory will be its modular nature. While product development is not, as some have propounded, a linear process, there are distinguishable elements within that process. As far as possible these distinguishable elements will be isolated not only with respect to their operation in the development of products, but also as phases of the training sequence. By having each training and development element essentially separate, we can introduce long-term and short-term trainees to the competency they need at that time, not await the beginning of a complete new training cycle.

Another feature of the Laboratory is implied by its name, the Consortium Training Laboratory. We have not named it the Consortium Training Center or some comparable title which conveys the notion that it is here training will take place. No, we wanted a name that accurately suggests training will take place and be studied. We will be constantly analyzing the efficacy of the training tactics we employ. As indicated earlier, our results-orientation will permit the evaluation of our training efforts. We wish to evaluate the merits of many approaches to the training of developers and product evaluators. Such comparative experimentation will take place almost constantly within the Laboratory.

A final noteworthy feature of the Laboratory is that it will be staffed by an outstanding group of instructors. The full-time and part-time staff of the Laboratory will consist of a uniquely qualified group of educational developers. Not only will there be university theorists and researchers, public school personnel with practical educational experience, but representatives of the agencies where educational development actually takes place, e.g., American Tape Duplicators and Bailey Film Associates. The mix of these diverse specialities, all with the common goal of producing top quality developers and evaluators, will make the Laboratory by all odds a most stimulating center of intellectual activity regarding development and product evaluation. Results of staff seminar deliberations, training methods experiments, and related technological advances will be distributed as occasional papers of the training program.

In addition to the staff members representing the various consortium units, most of whom will be participating in the operation of the Training Laboratory on a part-time basis, we have assembled an outstanding collection of specialists throughout the nation who have, in response to a formal invitation, indicated their potential willingness to work with us in operating the training program. Most of their input will focus on the operation of the Consortium Training Laboratory where, quite likely, some will serve as visiting instructors. A complete list of these individuals will be supplied later in this document.

Practicum. Beyond the numerous practicum experiences which will be provided in the Consortium Training Laboratory, trainees will be provided with on-the-job supervised internships, particularly those trainees in the long-term sequences. Reasonably long short-term trainees will also be given such opportunities. We already have a fine internship arrangement developed with SWRL. Dr. Laurence Fish, Director of the Northwest Regional Laboratory has also indicated that he will welcome internship assignments in that institution. Dr. Harry Shoemaker of the American Telephone and Telegraph Company, Inc. has also promised the availability of internship assignments. These are only illustrative of the kinds of practicum assignments which will be required

of all long-term trainees. Some will extend for only a month or so. Some will last a half-year or longer depending on the trainee's measured competencies at the time and upon the potential productivity of the practicum assignment. Individual judgment will have to be made regarding each of these assignments, of course. Hopefully, short-term training sequences of a month or so will include at least brief practicum assignments either within the consortium agencies themselves or in other units, e.g., regional laboratories, identified for that purpose.

The specific ingredients of the training sequences, both short-term and long-term, will be given below under product development objectives.

Training Sequences for Product Evaluators

To a considerable extent there will be similarities between the sequences we will provide to train product evaluators and product developers. While the similarities will be briefly noted, the major differences will be identified in this section. There will be long- and short-term training sequences. The training will occur both on site at certain consortium agencies, particularly within the Los Angeles County Schools, and at the Consortium Training Laboratory. Training components will be modularized as much as possible. We will call upon an outstanding staff of visiting instructors to supplement our regular training staff. Now, what about the differences?

Since the role of a product evaluator is clearly different from that of a product developer, there will obviously be substantive differences in the competencies which we shall promote for our trainees. In general, whereas the evaluative skills of the product developer are related to formative evaluation, those of the product evaluator are related to summative evaluation. The product evaluator we have in mind will be an individual who can assist educators in reaching decisions regarding already developed educational products, irrespective of whether they were developed by a rigorous results-oriented technology or by a more intuitive author's-choice procedure. Thus, his skills will be based on his abilities to appraise the other fellow's product, not improve his own. He will have to be able to infer objectives for materials which do not possess them. He will have to be able to secure learner post-instruction performance data as well as other pertinent information, e.g., costs, teacher reactions to material, longevity of products, etc., so that decision-makers can reach more prudent judgments regarding the materials under consideration.

An instructional materials evaluation service. In the C[illegible]tium Training Laboratory one somewhat unique activity would be the provision of a [illegible]d scope service for those who wish assistance in the evaluation of instructional [illegible]ucts. We will publicize the existence of this service by the training program, and will charge reasonable fees for the service to partially defray training costs. Yet, we will be extremely selective in choosing such projects. This is not intended to be a major consulting service, but rather, to be analogous to the product development activity we shall engage in primarily to train developers. Hence, we shall be conducting evaluations primarily to train product evaluators in a real life setting.

As we shall see, certain components of both training programs will be taken by trainees in each group. For example, training sequences dealing with the development of mreasures will be applicable for both groups whether the objectives were formulated by the developer trainees or inferred by the evaluation trainees.

The One Year Program

The year-long program in product development will be composed of changing instructional formats to suit various emphases during training. Of central importance is the access trainees will have to consortium staff. Provision will be made for weekly sessions to allow trainees and staff to express perceived needs for modifications. While

substantively different, the general structure of the year-long program for evaluators would be comparable.

During the opening weeks of training, each participant will undergo orientation to the procedures and attitudes deemed appropriate to development. The result of a pretest on information-based objectives may permit the trainee to investigate more thoroughly various rationales for training, based upon guided selections from an extensive bibliography. The second phase of training will emphasize preliminary application of product development procedures. Small teams of trainees, led by a staff member, will engage in practice in various development activities, e.g., specification, using simulated conditions. Semi-weekly seminars will permit the reasoned interpretatin of difficulties which trainees experience. A third phase of training would allow trainees to opt for various specializations on an internship basis, e.g., film making, television production, computer managed instruction. The outcomes of such specialized internships are intended to provide the novice with only minimal competence. If extended training were desired, arrangements may be made on an individual basis. During Phase Three, trainees would continue their relationship with the Consortium Training Laboratory staff by means of independent development projects and seminars.

The fourth phase of training entails a heavy internship commitment by the trainee. Internships will be arranged in participating agencies where adequate supervision is available. In some cases, the Training Laboratory staff would have to contribute to the supervisory capability of the institution in which the internship is located. Internships would involve contractually agreed upon tasks for which the trainee would be accountable.

A fifth phase of the program would focus on development of a criterion product by which the trainees skills would be appraised. Trainees would select from alternative topics and formulate, develop, test, revise, etc., a discrete instructional product. The short-term effects of the training will be evaluated through examination of the completed product and accompanying technical report.

Presented schematically, the year-long training program can be depicted as follows:

One Year Program in Product Development

	EMPHASIS	DOMINANT FORMAT	DURATION
Phase I	Orientation information	Lecture-discussion; independent study	1 month
Phase II	Controlled practice	Team-based and individual simulation; seminars	3 months
Phase III	Specialized Training	At least 75% activity in production in areas of interest, e.g., television, computers, individual development, seminars	1 - 3 months
Phase IV	Internship	Integration into development agency; responsibility for specific tasks	4 - 6 months
Phase V	Evaluation	Independent development of a criterion project	4 - 6 weeks

Short-Term Training Programs

A variety of short-term programs, from one week to one month in length are envisioned as appropriate for the training program. Programs may be specific to particular

activities associated with development or evaluation programs, e.g., field testing, may relate to media, or may be a telescoped version of the orientation information portion of training. They may also be directed to homogeneous trainee groups, e.g., state Title III evaluators or editors in a publishing house. Particular agencies, for instance, American Telephone and Telegraph, have displayed interest in such training for a major portion of their development staffs.

Short-term programs, whether specialized in terms of development procedures or media, or comprehensive and compressed, will be formulated as needs arise. The base for such programs will generally be artful combinations of extant competences.

Graduate Degree-Related Programs

Doctoral Training. A doctoral degree may be secured as part of the program provided certain criteria are met:

1. The trainee is admitted to the UCLA Graduate School of Education. Admission for graduate work requires a master's degree, a Graduate Record Examination score of approximately 1,200, a grade point average of 3.0 from a Class A institution.

2. The trainee completes additional requirements as stipulated in the programs of Instructional Product Research or Educational Evaluation, including coursework, qualifying examinations, and dissertation.

It is anticipated that such requirements would require approximately eighteen months to complete. Sample, not exhaustive, competencies required for the completion of the doctorate in Instructional Product Research in addition to those specifically required for the consortium training program are as follows:

Research

1. Ability to design experiments and evaluations, including:

   a. adequate conceptualization of manipulated and demographic variables and/or adequate description of program to be evaluated.

   b. adequate production and validation of criterion instruments

   c. appropriate selection and application of statistical procedure.

   d. qualified interpretation of results.

   e. literate reporting of results.

Prerequisites would involve ability to analyze extant research in terms of dimensions a - e.

2. Ability to identify and formulate alternative research approaches to problems in development and instruction.

Development

1. Ability to identify alternate procedures for each major development activity.

2. Ability to analyze the role of development in education with respect to basic research in the disciplines, basic educational research, applied research, dissemination and practice.

3. Ability to relate educational development problems to those faced in other product development fields, e.g., engineering, pharmaceuticals.

Such competencies are evaluated on written qualifying examinations. Course pattern expected in product development is as follows:

Core Courses

210A	Analysis of Educational Research
210B	Experimental Design in Educational Research
258A	Problems in Instructional Research
260	Seminar: Principles of Curriculum and Instruction
267	Seminar: Educational Technology
418A	Fundamentals of Programmed Instruction (or)
419A	Experimentation on Media of Communication and Instruction
420A	Principles of Curriculum and Instruction
420B	Instructional Analysis
420C	Evaluation of Curriculum and Instruction
433A	Instructional Product Development

Recommended electives (three courses required)

210C	Experimental Design: Advanced Topics
211A	The Measurement of Educational Achievement and Aptitude
211B	Measurement in Education: Underlying Theory
212A	Learning and Education
212B	The Teaching of Concepts
212C	The Teaching of Problem-Solving Abilities

(Within the Ed.D. a student might choose to emphasize product research and evaluation techniques or production of materials. The necessity for a minor would depend upon the candidate's background.)

Masters of Arts Degree

Trainees may pursue masters degrees provided they are admitted to the UCLA Graduate School of Education as above. They must complete nine courses and a thesis, but do not receive degrees strictly in product development or evaluation. Since the M.A. program is very flexible it would be possible to complete work for the masters degree with approximately one quarter of additional work. Masters theses may be results of development effort.

General Competencies for the Educational Evaluation Doctoral Program are as follows:

1. The student understands the use of evaluation and the nature and rationale of different evaluation strategies. This includes identifying situations which require evaluation and the characteristics, attributes, similarities, limitations, advantages, and implications of alternative evaluation models (or theories) for different kinds of evaluation problems.

2. The student understands the nature and role of objectives. This includes identifying objectives (or goals), explicating the consequences of them, translating them into behavioral terms when necessary, comparing actual and intended outcomes, identifying discrepancies between goals and outcomes, and recognizing the impact of unanticipated outcomes.

3. The student can identify and explain the major strengths, weaknesses, and implications of various kinds of evaluation measures and other information collection techniques. This includes understanding of and/or knowledge about issues such as validity,

reliability, test construction philosophies and strategies (e.g., norm vs. criterion referenced), survey research techniques, score reporting and interpretation procedures, kinds of measures and data needed for different kinds of evaluation problems, and sources of information about measures, data, and techniques.

4. The student can identify and explain the strengths, weaknesses, and implications of different kinds of evaluation designs and analytical techniques. This includes determining the appropriateness of designs and methods for obtaining needed summary data for different kinds of evaluation problems, such as evaluations of educational systems, instructional programs, students, and non-pupil programs (e.g., TTT). This also includes understanding statistical and other inference techniques (e.g., computer simulation).

5. The student understands how to communicate with decision-makers and others in order to implement evaluation designs and translate results obtained so that appropriate actions can be taken. This communication requires understanding the interrelationships among evaluator, decision-makers, and others involved in and affected by the evaluation.

6. The student can apply all the foregoing knowledge to actual and hypothetical evaluation problems. This involves describing and carrying out all the step-by-step procedures and techniques we would use, including data collection, analysis, and communicative procedures. Competencies are evaluated on written qualifying examination and in the dissertation. Anticipated course requirement will be selected from the following:

210 A	Analyses of Educational Research
210 B	Experimental Design in Educational Research
210 C	Experimental Design, Advanced Types
211 A	Measurement of Educational Achievement and Aptitude
211 B	Measurement in Education: Underlying Theory
420 C	Curriculum Evaluation
255 A	Seminar in Evaluation Theory
255 B	Seminar in Evaluation and Decision-Making
259	Evaluation in Higher Education

Recommended Courses

433 A	Instructional Product Development
420 A	Curriculum
200 A	Survey Research Methods
203	Philosophical Interpretations of the Behavioral Sciences

INSTRUCTIONAL OBJECTIVES AND MEASUREMENT PROCEDURES

We turn now to the specific goals of the training program. Since this program, if it is funded, will be producing crucial educational practioners, for their influence on the future may indeed be profound, we want to be inordinately careful about the kinds of trainees we are producing. We will eschew preparation practices which will produce individuals trained only for today and not tomorrow. Instead, we will endeavor to produce product developers and product evaluators who can function with great skill today, but who will be ready to play a role in future development and evaluation configurations not yet anticipatable. In this regard, we will be preparing trainees who possess (1) an empirical orientation, (2) adaptability skills, and (3) specifiable competencies. The first two of these three dimensions will be nurtured in a general fashion throughout the training program. We will attempt to become skilled in assessing the attainment of these two general goals, but will clearly be in a better position to assess specific competencies. All three general goals, however, will guide our training efforts.

An Empirical Orientation

Gagné (1969) writes of the "irreducible" characteristics desired of an educational technologist. These characteristics fall in three categories: values, knowledge, and methodologies. Gagne emphasizes that a central value for educational developers to hold is the belief "in empirical evidence as a source of truth and a preferred basis for action." Glaser (1966) has noted that such empirically-oriented development personnel likely have been trained as educational researchers and often act in both research and development capacities.

Adaptibility as a Desired Attribute

Kuhn (1966) describes manpower lessons inferred from the study of management problems in the emerging nuclear power industry. His observations have great relevance for instructural product development and product evaluation in their current pre-technology state. Kuhn proposes a framework within which one can assess manpower in developing technologies. His assumption is that requirements in the early stages of a technology change in dramatic and in largely unpredictible ways. The flexibility of the developer along any one of three dimensions is critical to his ultimate usefulness in a rapidly accelerating field. Individuals with flexibility along Kuhn's hypothesized first axis demonstrate their ability to draw from diverse theories or experience to design solutions to given problems. Such persons would correspond in role to those responsible for prototype preparation in the product development cycle described. Individuals with flexibility along a second axis might instead be able to fulfill a given function in a wide variety of problem areas. For instance, he would be able to prepare specifications in the humanities as well as in the sciences, for pre-school learners or for college students. Those who exhibit flexibility along a third dimension are most prized by Kuhn: "This axis is parallel to the flow of technological development; a man flexible in this direction is able to shift the center of his job concern as the emphasis of a technology progresses from concept to marketable product." These individuals are rare and are essential when the functional distinctions among development stages are not discrete. Another factor is that manpower requirements within institutions change. In the early stages of a technology, most manpower will be concentrated on developing alternative designs. Later, as the technology develops, individuals will be needed for prototyping, field testing, and implementation. Rather than idle or dismiss staff as the development focus shifts, agencies can use the developer with "parallel flexibility" since he can alter his role as necessary.

If one accepts Kuhn's analysis, the next puzzle is how one identifies or trains individuals with such flexible predilections. One might venture that the training of concept synthesizers, Kuhn's first type, may be most difficult. Training might, however, be reasonably provided to promote flexibility in the second and third dimension. Trainees could be given experiences at either one or two stages and thus develop a functional role, such as test writer or revision maker. In training people to demonstrate "parallel flexibility," opportunities would be given to supervise a variety of projects from initial phases to completion.

The type of training needed is, of course, relevant to the organization of the development institution. Organizations structured by functions would have greater need for developers with practice in the second axis. Project centered organizations might better use developers prepared to exhibit parallel flexibility.

Specific Competencies and Measurement Procedures

For ease of presentation we have coordinated the presentation of the instructional objectives with the measuring devices used to assess the attainment of these objectives. Further, these objectives and measurement procedures will be presented separately for the two major training program emphases, that is, product development and product evaluation.

It is particularly important to note that the objectives to be presented in the remainder of this section represent terminal objectives rather than en route objectives and it should not be inferred that en route objectives (and measures of their attainment) will not be important in the training program. For instance, many of the objectives to be presented below describe the trainee's ability to generate certain kinds of material, specifications, etc. For instance, the trainee may be called upon to produce a set of instructional specifications which satisfy clearly explicated criteria. Now it is highly likely that the trainee would first be called upon to identify deficiencies in sample instructional specifications. That is, he would be presented with real or fictitious sets of instructional specifications and asked to identify the strengths and weaknesses within

such documents. This kind of discrimination practice will, in general, precede most of the objectives to be found in the following section. The point we wish to emphasize is that for parsimony we have not included a description of all of these en route objectives. But they would certainly be included in the training program, for measuring trainees by attainment of such objectives we could determine where modifications in our training sequences should be undertaken. It should also be noted that the highest priority objectives have been identified with an asterisk. The reader may wish to attend more carefully to such objectives.

Product Development Objectives

At the close of identifiable segments of the training program, the product development trainee will be able to accomplish the following objectives:

Formulation

*1. Objective. To design and/or carry out a step-by-step procedure to be followed in conducting an educational needs assessment whereby instructional goals are selected on the basis of systematic consultation with reference groups representing the community, the learner, and the subject discipline.

Measurement Procedure.

A. Objectives will be assessed by

1. Requiring trainees to write out a procedural description of how an educational needs assessment should be conducted, given real or fictitious data regarding the situation in which the needs assessment is to be conducted.

2. Having trainees engage in actual conduct of an educational needs assessment.

B. Criterion

1. Congruence of written description or actual operation with one or more recommended systems for implementing a goals-determination analysis, e.g., after Popham (1969) or recommendations of market survey consultants to be employed by the consortium.

*2. Objective. To design and/or carry out a market analysis in which competitive instructional products are identified and their external characteristics (e.g., cost, time, requirements, needed entry behaviors) contrasted with those of an intended product to be developed.

Measurement Procedure.

A. Objective will be assessed by

1. Trainee's ability to describe procedures to be followed in conducting such market analyses.

2. Trainee's identification of potentially competitive products and their characteristics given directions to locate all members of a class of competitors, for example, all self-instruction products purporting to provide basic skills in geography for elementary school children.

B. Criteria

1. Procedures must include consultation of all standard sources through which extant products can be identified, e.g., Henderschott's Programmed Instruction bibliographies.

2. Actual identification of nearly all, i.e., circa 90 percent, major competitors. The competitive products will have been previously identified by exhaustive research on the part of consortium staff.

3. Objective. Given several desired instructional objectives and comprehensive information regarding extant instructional products, the trainee will be able to generate a defensible rationale for selecting a certain objective (or objectives) for which a new instructional product(s) should be developed.

Measurement Procedure.

A. Objective will be assessed by supplying trainee with real or fictitious information and requiring the proparation of a written rationale statement describing the selection of certain objectives.

B. Criterion

1. A jury technique will be employed to determine the cogency of the reasons offered in the rationale statement.

Specification

4. Objective. To write operational statements of goals for instructional products. These products may range from brief, highly structured sequences to year-long, highly complex instructional programs.

Measurement Procedure.

A. Objective will be assessed by

1. Providing general objectives for trainees to convert to operational statements.

2. Inspecting objectives produced in criterion development project.

B. Criteria

1. Overt behavior or observable product of behavior must be described.

2. Statement of content to which behavior applied must be included.

*5. Objective. To specify criteria for judging the adequacy of the learner's responses to the product's objectives either by describing necessary attributes which a constructed response must display or by estimating in a well-justified statement the required quantitative criterion level, e.g., percent of problems correct.

Measurement Procedure.

A. Objective will be assessed by

1. Providing operational goals with a variety of topics for which the trainee must add criteria.

2. Inspecting objectives produced by trainees in their criterion development project.

B. Criteria

1. Criteria must be stated for cognitive or psychomotor objective.

2. Qualitative criteria must provide either rules or examples by which to evaluate the adequacy of performance.

3. Qualitative criteria must project numerical levels which the trainee justifies in terms of evidence that supports the levels posted. Examples of such evidence might be entry levels required for subsequent learning, experts' estimates of performance levels.

4. Either correct answers or rules for evaluating a range of responses should be provided.

6. Objective. To write operational statements of goals for instructional products calling for higher cognitive processes (after Bloom, 1956) or generalization, (after Mechner, 1966).

Measurement Procedure.

A. The objective will be assessed by

1. Requiring in test-like situations, trainees to produce objectives calling for higher cognitive or generalization behaviors.

2. Inspecting objectives produced for a criterion development task for higher cognitive or generalization behaviors.

B. Criteria

1. Objectives must describe responses which can be reliably categorized by instructional experts as either comprehension, application, analysis, synthesis or evaluation or as instances of generalization.

2. Objectives must include some qualification regarding the nature of the planned instructional sequence to assure that seemingly taxing responses will not be memorized during instruction.

3. Objectives must describe overt responses or observable products produced by students.

7. Objective. To prepare operational statements of goals for instructional products involving affective responses, either subject-matter approaching tendencies, e.g., preference for subject matter; socialization, e.g., refraining from interrupting peers; or personal development, e.g., self concept increase measured by appropriate devices.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Providing general topics, e.g., attitude toward school, which the trainee must convert into affective goal statements.

2. By inspecting objectives generated by trainees in a criterion development project.

B. Criteria

1. Objectives must be operational.

2. Goals described must be in terms of volitional rather than assigned actions of learners.

3. On self-report devices, anonymity will be required.

4. Objectives may describe feelings, opinions, value preferences of learners.

5. It is anticipated that the majority of objectives will be classifiable at level two (responding) or level three (valuing) of the taxonomy of educational objectives, Handbook II (Krathwhohl, et al., 1964).

6. Feasibility of achievement of objective will be used as an additional criterion, that is, the likelihood that given objectives may be achieved, e.g., major personality modifications are unlikely, etc.

*8. Objective. To prepare operational statements of goals for instructional products which adequately describe stimulus limits of objectives, so that a domain of content is described from which particular instances for teaching and testing may be sampled. (See Kriewall, 1969; Nitko, 1970; Hively, et al., 1968; Sension, 1970).

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Providing test-like situations where trainees must produce domain-referenced objectives in their subject field of competence.

2. Inspecting objectives produced for their criterion development project.

B. Criterion

1. Objectives will be satisfactory which stipulate stimulus limits for responses. Such limits may be provided by (a) a rule which describes content domain, e.g., all two digit addition rpoblems, any lyric poem written by Keats or Shelley; (b) by listing every element of the set of content, e.g., to write analyses of To the Lighthouse, Portrait of a Lady, Sister Carrie, My Antonia.

9. Objective. To make preliminary estimates regarding group performance levels for a proposed product, e.g., 90 percent of the subjects, based upon a study of the achievement levels of current practice, if any.

Measurement Procedure.

A. The achievement of the objective will be assessed by

1. Requiring trainees to amend statements of operational goals by adding group performance levels and a justification for their estimates.

2. Examining objectives produced for a criterion development project.

B. Criteria

1. Performance levels must either exceed documented achievement produced by current practice, substantially reduce cost, or achieve additional objectives concomitantly.

2. Performance levels must clearly describe the proportion of the group for which success is anticipated.

3. If success in product goals is planned for less than 100% of the students, a justification describing the types of students who are not expected to succeed is required.

Behavior Analysis

*10. Objective. Given operational statements of product goals, to generate sub-tasks hypothesized to be essential to the achievement of the terminal task.

Measurement Procedure.

A. Achievement assessed by

__ 1. Providing in a test-like context sample operational objectives and requiring trainees to write statements of posited subordinated tasks.

2. Inspecting the analysis of objectives used in criterion development projects.

B. Criteria

1. Subtasks must be stated in observable behaviors or products.

2. Tasks must bear logical relationship (as perceived by expert judges) to the terminal task.

3. Tasks for which no subordinate structure is produced must be accompanied by an explanation and a statement of what coordinate tasks are posited.

11. Objective. To demonstrate ability to classify sub-tasks according to procedures developed by Gagné, including tasks which call for stimulus-response learning

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. When given in a test-like situation a set of tasks, the trainee will mark each of the tasks as one of Gagné's classification of learning (1970), e.g., verbal chaining.

2. When asked to generate an objective in a test-like situation, the trainer can properly test subordinate skills and label them according to Gagné's scheme.

B. Criterion

1. At least two judges will agree on the classification produced by the learner.

12. Objective. To demonstrate ability to classify sub-tasks according to procedures described by Mechner, including tasks which call for association, discrimination, generalization.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. When given in a test-like situation a set of tasks, the trainee will mark each of the tasks as one of Mechner's classification of learning, e.g., verbal chaining.

2. When asked to generate an objective in a test-like situation, the trainer can properly test subordinate skills and label them according to Mechner's scheme.

B. Criterion

1. At least two judges will agree on the classification produced by the learner.

13. Objective. To classify sub-tasks as either entry behaviors, skills possessed prior to instruction, or en route objectives, objectives for which the product assumes instructional responsibility, (see Baker, Gerlach, and Sullivan, 1968).

Measurement Procedure.

A. Achievement of the objective will be assessed by:

1. Requiring trainees to label each of identified subordinate tasks as entry behaviors or en route objectives.

B. Criterion

1. A jury technique will be used to gauge the likelihood that the trainee's discriminations represent reasonable assignments as entry or en route behaviors.

*14. Objective. To present a statement of probable best sequence for sub-tasks, justifying the task order on the basis of behavioral analysis according to Gagné, Bloom, Mechner, etc., content structure, or some other reliable basis of analysis.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Presenting trainees with a set of subtasks which they are directed to sequence. They must provide a written justification for any sequence they propose.

2. Inspecting sequence projected for subtasks in a criterion development project.

B. Criterion

1. Justification must depend upon at least one of the following: use of behavioral analyses structure suggested by Gagné, Mechner, or Bloom, statements by subject matter, experts on content structure, experimental data relating to possible sequence alternatives.

15. Objective. To produce a pre-instruction test which assesses behavior stipulated in terminal objectives, en route objectives and entry behaviors.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. In a test-like situation, asking trainee to produce a test which measures tentative terminal, entry and en route tasks.

2. Inspecting the criterion project for evidence of a pre-instruction list.

B. Criteria

1. Test items must be judged by independent analysts to measure stated tasks.

2. Explicit criteria for judging responses should be included.

3. Test directions should be provided.

4. Language should be appropriate to learner.

5. Test length must be reasonable for age level of learner. Procedures for item/person matrix sampling should be used where test fatigue is a factor.

6. If matrix sampling is used, alternate test forms must assess related tasks, i.e., tasks hypothesized to form a learning structure.

*16. Objective. Given sets of hypothetical or actual data from pre-instruction testing, to identify objectives which should be discarded, objectives which need revision, and objectives to be included in the product.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Identifying, when given hypothetical data in a test-like situation, which objective should be revised, included, or discarded.

2. Making revisions of his objectives in his own criterion project based upon pretest data.

B. Criteria

1. Decision to discard objective will be based on high achievement levels of uninstructed groups.

2. Decision to reduce criterion levels, either qualitative or quantitive will be justified by a written discussion of serious and unanticipated deficiencies in learner performance on entry skills.

3. Decision to modify objectives must be explicated on the basis of (a) achievement of en route objectives (b) new information or conceptualization of the tasks based upon pretesting.

17. Objective. Given sets of hypothetical or actual data from pre-instruction testing, to determine if the pattern of response to posited terminal, en route and entry skills confirms assumptions of dependence, that is, learning structure, (see Gagné and Paradise, 1961).

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Trainees will be presented with data arrayed by success and failures for each of a set of tasks. Trainees will be asked to identify which tasks, if any, appear to be dependent upon other tasks. Trainees will formulate their conclusions into statements of learning structures.

2. Given the task to verify hypothesized structure, i.e., dependence among objectives, student will prepare from data he has gathered for his criterion project, a chart in which learners successes and failure by task are displayed. He will proceed as in the previous point.

B. Criteria

1. Judged likelihood that the trainee's selection of a learning structure is indeed task analytically defensible according to a priori judgments.

2. Empirical tryout of trainee's structures.

Prototype Development

*18. Objective. Given a description of constraints (Geis, 1970, Shoemaker, 1970), such as probable context of use, costs of competing products, computer availability, intended life span of product under development, and performance specification to produce at least two alternate plans for prototype of products which adhere to the given limits.

Measurement Procedure.

A. Objective will be assessed by

1. Requiring the trainee to produce alternative plans for product prototypes in a simulated exercise.

2. Inspecting the alternate prototypes considered in the trainee's terminal development task, e.g., computer assisted instruction or computer managed instruction.

B. Criterion

1. Judged consonance of alternative prototypes with given constraints, etc.

*19. Objective. Given a set of performance specifications, to develop a detailed instructional plan which includes reliance on some of the following instructional principles: direct practice, prompting, knowledge of results, use of advance organizers, mathemagenic procedures, etc.

Measurement Procedure.

A. Achievement will be assessed by

1. Asking the trainee to illustrate the use of specifically given instructional principles given at least three different sets of specifications in a test-like situation.

2. Asking the trainee, when given at least two alternate sets of specifications, to select one and develop an instructional sequence employing those instructional principles he deems suitable.

3. Inspecting the instructional plans the trainee provides in his criterion development situation.

B. Criteria

1. Principles should be illustrated in the instruction, not named.

2. Description of activity should be in sufficient detail to permit knowledgeable readers to identify principles.

3. If principles are used which may be freely interpreted by the developer, e.g., reinforcement, contiguity, social motivation, the developer must present a justification of the particular stimulis selected, e.g., to explain the evidence or basis which guided the form of reinforcement employed in instruction.

20. Objective. Given segments of products to state which of a given set of instructional principles are included.

Measurement Procedure.

A. Objectives will be assessed by

1. Priving the trainee with descriptions or sample segments of instructional programs, and a list of principles and asking them to indicate which, if any, are being employed.

2. Providing the trainee with sample segments of instructional programs, and asking them to name principles employed.

B. Criteria

1. All instructional principles included in the segments must be named.

2. For assessment of A 1 above, principles listed but not actually included in the program segments should not be selected.

*21. Objective. To be able to write a justification for the selection for certain media on the basis of instructional principles, e.g., opportunity to practice, and logical relationship of task to media capacity, e.g., necessity for color or motion, (see Lumsdaine, 1963).

Measurement Procedure.

A. Objective will be assessed by

1. Asking the trainee when given a statement of intended product goals and alternate selections of media or combinations of media, to identify the media characteristics logically related to the stated goals.

2. Inspecting decisions made in the prospectus or the criterion development project.

B. Criteria

1. Stringent justifications are required for media selection, estimating relationship of cost to anticipated benefit, e.g., consumnability, lifespan of product, particular capacities of media which has instructional applicability.

2. The highly selective use of experimental data comparing media effects may be included in the justification, if qualifications regarding lack of generalizability of results are stated and particular attributes of the topics, programs and subjects used in the cited evidence are identified.

*22. Objective. To prepare complete instructional products, as well as segments of such products, which include selected instructional principles.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Inspecting segments of and completed products trainees produce under simulation conditions.

2. Inspecting product for criterion development situation.

B. Criterion

1. All instructional principles included in the segments must be present to the satisfaction of staff judges.

23. Objective. To describe procedures for the majority of the planned instruction which are reproducible; if teacher-mediated products are proposed, to provide a written plan for determining the reproducibility of the instructional events and the variability tolerances between classrooms anticipated.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Inspecting segments of products designed in simulated situations.

2. Inspecting actual product generated in criterion development project.

B. Criterion

1. Reproducibility is defined as anticipated replicable instructional events (see Lumsdaine, 1964).

*24. Objective. To design short-term experiments to provide usable data to aid in selecting among instructional alternatives, e.g., response mode.

Measurement Procedure.

A. Objectives will be assessed by

1. Providing the learner with given instructional problems and a choice among variables to manipulate, and requiring her to design an experiment for the purpose of gaining information.

2. Providing the trainee with instructional problems where he has to identify the variables most useful to consider and to design an experiment to aid instructional decision-making.

B. Criteria

1. Variable selected or identified in either A 1-2 above will be manipulable.

2. Levels of the variable will be explicitly defined.

3. If media are selected for experimental comparison, report must limit the generalizability of the findings; cost differentials must also be computed as part of the criterion measures.

4. Criterion measures must be criterion-referenced.

5. Time intended for experiment must be modest, but of a duration which the experimenter can justify as permitting sufficient opportunity for treatment effects to be shown.

6. Sample size necessary to show desired effects must be experimentally determined (See Hays, 1963, p. 204).

7. Experiments should be conducted only in those situations where program performance is sufficiently deficient to permit the experimental effects to be shown; that is, products which result in performance of 80% or more should probably not be vehicles for experimentation unless particular sub-populations of learners consistently experiencing difficulty are selected as the subjects of the experiment.

Prototype Tryout

25. Objective. To prepare a hypothetical plan for prototype tryout including numbers and descriptions of subjects, conditions of tryout, justification for segment selected to be tryout, categories of data to be obtained and plan for reporting the results of the tryout.

Measurement Procedure.

a. Objective will be assessed by

1. Providing trainees with a thorough description of a product prototype, and asking them to plan a tryout.

2. Inspecting the prototype test plan used in the criterion development task.

B. Criteria

1. Selection of sample for tryout must be related to population for which the product is intended; it cannot be based on an "available subjects" mentality.

2. Segments selected for tryout must be justified in terms of the particular classes of information the developer whishes. They should represent major instructional strategies and should provide sufficient time for an adequate sample of various activities to be obtained.

3. Plan should include forms for recording the categories of data of interest to the developer among the following: (a) response data to program stimuli; (b) latencies for response data (unobtrusively obtained); (c) criterion performance; (d) time to criterion; (e) interactive responses with learners; (f) observation of learners responses for signs of confusion, boredom, etc.; (g) observation of program procedures, i.e., the extent to which the program operates as intended, including particular attributes which the developer will attend; (h) affective reports.

*26. Objective. To be able to conduct prototype testing sessions under conditions which call for the reliable accumulation of some of the following calsses of data: (a) response data to stimuli within the product; (b) latencies for response data; (c) criterion performance; (d) time to criterion; (e) interactive responses with learners; (f) observation of learners responses for signs of boredom, confusion, etc.; (g) observation of program procedures, i.e., the extent to which the program operates as intended.

Measurement Procedure.

A. Objective will be assessed by

1. Presenting a videotaped sequence of an instructional tryout to the trainee and asking him to collect the data specified.

2. Observing that the data he intended to collect and the type of data actually collected in the prototype trials are in agreement.

B. Criteria

1. Trainees will be able to prepare and if necessary, pre-try forms which can be used for the reliable recording of data.

2. In measurement A 1 above, all instances of the data required will be recorded by the trainee.

3. Anecdotal and subjective as well as quantitative and objective data will be collected.

27. Objective. To be able to display prototype tryout data in arrays of special use to development personnel, e.g., responses arrayed by stimulus, e.g., frame criterion test item and/or objective: lists of incorrect answers produced or selected, organization of responses by instructional medium, e.g., errors attributed to instruction by tapes, by teacher, by booklets.

Measurement Procedure.

A. Objective will be assessed by

1. Providing the learner with hypothetical or real data obtained in prototype or product tryout, and asking him to summarize the data according to specified dimensions.

2. Inspecting the report of tryouts conducted in association with the trainee's criterion development project.

B. Criteria

1. All discrete dimensions for organizing data, if pertinent to revision, will be included.

2. Data which may be attributed to combinations of program components will be so indicated.

28. Objective. Given sets of hypothetical or actual data from prototype test, and sample instructional segments, to suggest explanations for obtained data, e.g., subordinate task is missing, irrelevant information is included (see Gagné and Paradise, 1961; Silberman, et al., 1964).

Measurement Procedure.

A. Objective will be measured by

1. Providing simulated data displays, objectives and instructional segments and asking students to justify why a particular hypothesis, e.g., irrelevant information is interfering, is or is not plausible.

2. Providing simulated data displays, objectives and instructional segments and, asking trainees to suggest and justify plausible alternative hypotheses to explain the data.

3. Inspecting hypotheses ventured and justified in the trainee's criterion development task.

B. Criteria

1. Explanations should center upon instructional dimensions, i.e., learning principles and teacher-mediation problems. Hypotheses related to media changes will have to be firmly supported.

2. Different alternatives will be used to explain situations where en route objective achievement is high but criterion performance is low from cases where both en route and criterion performance are low.

3. Trainees will attend and relate in their discussion the relationship between cognitive and affective indicators.

4. In cases where criterion performance is satisfactory, alternatives to shorten, or otherwise reduce the cost of instruction should be considered.

*29. Objective. To revise prototype of products taking explicit account of the following inputs:

(a) response and criterion data on cognitive goals
(b) attitude indicators, both by observation and self-report
(c) subject matter critics' comments
(d) real world teachers' criticisms
(e) learners' comments to test supervisor
(f) literary or aesthetic judgments of style, e.g., rhetoric, camera angle

Measurement Procedure.

A. Objective will be assessed by

1. Presenting trainees with instructional segments, data, and objectives and asking them to revise consistent with the above dimensions.

2. Inspecting the revisions made in their criterion development project.

B. Criteria

1. Judges must agree that revisions are consonant with data provided.

2. Where the trainee wishes to ignore criticisms in revision provided by users, subject matter critics, or media specialists, he must do so explicitly, explaining why he did not take account of selected criticisms.

3. To the extent that he can, the trainee will be guided by the principle of economy in his revisions; he will never increase the overall instructional time by more than 20% as a function of a single trial-revision combination.

30. Objective. To indicate either in writing or in an interview the revisions implied by empirical tryout, in terms of product goals, expected criterion levels, instructional sequencing, teacher variability, if pertinent, principles of instruction used, cost, product format, content population for which product was intended.

Measurement Procedure.

A. Objective will be measured by

1. Presenting the learner with a simulated product to revise, and asking him to prepare a revision plan.

2. Inspecting the criterion development product produced by the trainee.

B. Criteria

1. Papers must include explicit reference to each of the points in the above objective.

2. Revision plan must be articulated; that is, how will revisions be planned to take place, what principles will be emphasized, etc.

31. Objective. To produce a coordinating plan for diverse elements of a complex instructional program, e.g., films, lesson workbooks, computer management procedures, including a schedule which integrates these into the user period permitted.

Measurement Procedure.

A. Objective will be assessed by

1. Presenting trainee with multiple-component programs to sequence and a given instructional time and organizational format, e.g., large group instruction, and requiring the student to produce a schedule which integrates all components.

2. In a prospectus for a complex program asking trainees to provide such schedules.

B. Criteria

1. A schedule must include all components provided.

2. When more than one component is to be used during a single instructional period, e.g., class, the order of use must be given.

3. In all cases, anticipated time necessary to use any segment should be estimated.

32. Objective. To produce a statement of staff allocation estimates, including required tasks, man-hours necessary, and job qualifications of personnel for a complex development project.

Measurement Procedure.

A. Objective will be assessed by

1. In a prospectus, asking students to provide such management estimates.

B. Criteria

1. Job qualifications will be explicitly stated in terms of particular skills.

2. Man-hours will be analyzed by job classification involved, e.g., 40 hours for research assistant.

3. Tasks will be stated both in terms of outcomes desired, e.g., an improved instructional program, but in terms of requisite interim activities, e.g., conduct prototype test session.

33. Objective. To be able to plan sessions to provide in-service training for co-workers in selected development skills.

Measurement Procedure.

A. Objective will be assessed by

1. Asking the trainee to prepare a plan for a short training workshop on general development skills.

2. Asking the trainee to choose among the development activities, e.g., specification, revision, and to plan a short two-day training program on the topic.

B. Criteria

1. Instructional plans must include specific objectives, plan for criterion measures, opportunity for trainees to practice desired skills.

2. Scope of training must be commensurate with alloted time.

*34. Objective. To be able to prepare a detailed prospectus for a major instructional product.

Measurement Procedure.

A. Objective will be assessed by

1. Requiring trainee during the latter phases of his program to submit a prospectus for a major instructional product in his area of competence.

B. Criteria

1. The following major development activities should be included:

(a) formulation
(b) specification
(c) objectives analysis
(d) test development and tryout
(e) prototype development
(f) tryout and revision
(g) development management
(h) field test

2. Activities such as formulation and specification should be fully expanded. Justification for product must be provided. Procedures for the solicitation of review of formulation and specification must be provided.

3. Objectives must include a consideration affective outcomes.

4. Sample analysis of a complex objective is required.

5. Basis for initial media selection, including print, must be provided.

6. Description should be provided of subjects, numbers, conditions, under which prototypes are to be tested.

7. Types of data relevant for revision should be included.

8. Basis for evaluation should be described.

9. Sample test items should be included.

10. Estimation need for teacher training, user orientation, etc., should be included.

11. To include a planned schedule of events for activities included in the prospectus.

35. Objective. To prepare detailed forms for use in soliciting external review, e.g., users, subject matter experts, to obtain critiques following specifications, prototype development, etc.

Measurement Procedure.

A. Objective will be assessed by

1. Presenting classes of information desired at various points, e.g., information for external review by users to trainees and requiring that they prepare forms which solicit such information.

2. Inspecting forms produced for the criterion development product.

B. Criteria

1. Both selected and constructed responses may be solicited.

2. Language of form should be easily comprehensible to respondents, i.e., technocratese is not permissible.

3. If preferences are solicited the form must provide anchor referents, i.e., preferred to what?

4. Scaling decision must be justified.

5. Form must be brief.

Product Assessment

In addition to the foregoing competencies, trainees would be expected to achieve certain objectives associated with how one evaluates a completed product, or at least an early version of such product. Accordingly, the following objectives from the set prepared for product evaluators would also be sought for the product developers: Numbers 3, 4, 7, 8, and 9.

Competencies for the Practicum Experience for Product Developers

The following competencies apply particularly to the practicum phase of our training efforts for product developers:

I. Vocabulary Comprehension

The necessity for skillful communication, both in terms of being able to express oneself effectively and to understand accurately communications from others, is critical for the future product developer. The trainee should be able to express himself to others using non-technical words in a fairly precise fashion and yet the trainee should understand both oral and written communication of a technical and slang nature in each of several fields.

A. Competency

The trainee will identify the meaning of key technical terms in fields related to educational product development by selecting the correct synonym of the term, one of the referents of the term, or an appropriate inference of the term as used in a sentence or paragraph.

B. Test Generating Procedure

For each of the agencies, prepare a list of 50 to 200 words which constitute the key terms for product development to understand. Have the list reviewed with deletions and additions by persons in the agencies who are recognized as capable judges. Make up a glossary of this list for each agency, containing between 200 and 500 words (this glossary might be used by the trainee for study purposes). Using a sampling procedure stratified by agencies, prepare a list of words to be used on the criterion test, the number being ten percent of the total list.

1. For half of the terms selected, prepare a vocabulary of multiple-choice items in which the word by itself appears in the stem. The five alternatives will constitute either synonyms for the word or characteristics (physical attributes, functions, or relationships).

2. For the other half of the list of words selected, incorporate them into a sentence or a paragraph. Then pose multiple-choice questions which require the trainee to identify an appropriate restatement of the sentence or a logical inference from the sentence.

C. See Sample Test Items

Sample Test Items for Vocabulary Comprehension

A. Words

Part of this test could consist of single word stems.

A gaffer is concerned with:

1. sound
*2. lighting
3. script
4. art work
5. film processing

B. Sentences and Paragraphs

Instead of simply presenting a single word in the test-item stem, the term could be incorporated into a sentence:

SAMPLE 1
"Emeryville High School has introduced the pontoon system in tenth grade History and English." From this statement you could infer that in the tenth grade at Emeryville High:

1. English is a prerequisite to history.
2. Classes in these subjects have been reduced in size.
3. Several tracks, for different ability levels, have been established.
4. All teachers of these subjects meet regularly as a small group to plan their units.
*5. For many students, classes in English and History are scheduled one right after the other each day.

SAMPLE 2
During the shooting of a scene for an educational film, you hear someone say, "We need a gobo." You may infer that:

1. The camera needs a zoom lens.
2. The sound equipment isn't working.
*3. The lighting is too intense.
4. A change in background is desirable.
5. Someone is needed to move the props.

II. Technical Information About Production

A good product developer must have a certain level of information about an educational product in terms of technical procedures within an agency. Although this information is only at an introductory level, it should enable the trainee to relate effectively to many persons with whom he will cooperate in product development in the field. This technical background will require vocabulary treated in the previous section.

A. Competency

When presented with a major technical task of physically producing the printed material, the artwork, the film, or the sound recording, the trainee will identify procedures most likely to be effective. A major technical task refers to a part of the production process so central that product developers must be able to describe the procedures involved; without such information, the trainees will be demonstrably less effective in the design and collaborative roles in material production.

B. Test Generating Procedures

Select two judges to prepare a list of major technical tasks as defined above, one judge being a technician with considerable experience in the field, the other a product developer. Randomly select five of these tasks for the criterion test. For each task pose a problem within the realistic operations of the company (e.g., a sales report, a memo from the company president, a complaint from a user, a staff review). Present the problem in a paragraph followed by one or more multiple-choice items which require the selection of (1) the best statement of what the problem is or (2) the best procedure to adopt. Both judges must agree that the item in final form meets the criterion posed above.

C. Sample Test Item

See Item No. 2 under Sample Test for Competency 5.

III. Information About Use of Products

As a result of his internship experiences, the trainee should have an intimate knowledge of the setting and the problems in which instructional products might be used. He will have an adequate opportunity to learn about the decisions which must be made before instructional products are ever put to use. He must understand the conditions under which products are used in an educational setting be it a classroom or on the job training situation. Such information should equip him to plan and revise more realistically in his product development work.

A. Competency

1. When shown a training problem in a particular user setting (home, school, industry, or government) calling for the use of an instructional product, the trainee will describe the nature of the dicisions to be made by an agency in seeking and selecting a product, the criteria used in making such decisions, and the facilitating and constraining conditions under which the product is likely to be used.

2. When presented with a completed instructional product, or a plan for the creation of a product, the trainee will identify needed revisions, if any, necessary for ultimate adoption and optimum use of the product; in order to show why the revision is necessary, he will describe the characteristics of the setting to indicate why the product is likely to be rejected for adoption or why the product will fail to bring about expected outcomes.

B. Test Generating Procedures

For each kind of agency in which products might be used, formulate a list of the decisions to be made by the agency in adopting or continuing the use of the product. For each decision list the criteria (the kind of considerations used in making the decision) which will probably be used by the decision agent. For each agency list the conditions under which the product will be used which must result in constraints upon the product and which offer promising alternatives for improved product use.

Example for School Settings

Decisions to approve or continue products are made by the School Board, superintendent, principal, curriculum supervisor, or teacher depending on the scope and cost involved in the change.

Criteria for administrative decisions include questions of public relations (the public's reaction toward the decision), cost of the product, administrative cost, schedules and space constraints, amount of teacher training required, and teacher reactions. Teachers criteria emphasize appropriate and significant teacher's role (neither a purely mechanical, clerical one, nor a threatening overly-difficult role), value of the outcomes, provision for individual differences, no increase in teacher load, reasonable amount of change in schedule and classroom procedures, and expectations about accountability.

Conditions of use include group settings, restricted space, competing demands for other curriculum activities, possible group facilitation (through use of tutors), logistic constraints of material and equipment storage (when not in use), and possible use of parents or community personnel for home or school assistance.

1. To develop measures of Competency (1) above, develop a number of essay questions as follows:

a. Formulate a set of criteria by which situations in home, school, industry, or government may be identified where the most critical needs for products exist.
b. Using these criteria, formulate a variety of situations where a demand for a product is explicitly or implicitly indicated.
c. In the first part of each essay question, describe in sufficient detail one of these situations to make it an example typical of a large number of situations which might be encountered.
d. In the second part of the question, pose one or more of the following kinds of questions:

   (1) What individuals are likely to make decisions about this need for products?
   (2) What are the important criteria which will be used in making these decisions if a product is involved?
   (3) If a product is developed to meet this need, what will be the features of the instructional situation which will force constraints upon the way the product is designed or presented? What are the options which the product developer might have in designing the product for this situation?

e. The scoring system for the answers should pay particular attention to the way in which the trainee identifies the practical factors of adoption and use of the product in relation to the list of decisions, criteria, and conditions previously prepared as indicated above.

2. In creating measures of Competency (2) above, develop a number of essay questions as follows:

   a. Create a list of the features of products which are likely to constitute a deficiency either because the product would never be adopted for use or because it is unlikely that it can be put to use under typical educational or training conditions.
   b. Formulate a description of a product (preferably an existing one) in which one or more of the above deficiencies is present.
   c. Include this description, as the first part of the essay question, along with an actual sample of the product (including the manual or other orientation materials).
   d. In the latter part of the question, ask the student to identify the changes needed in the product, if any. Ask him also to show the basis for his decision in terms of the field conditions in which the product might be used.
   e. Score answers as in Competency 1 stressing, of course, the relationship between the product features and the list previously prepared.

   For the section dealing with a plan for the creation of a product, adapt the above procedure as follows:

   a. Formulate a description of a plan for the development of a product in which inadequate provision has been made to guard against the deficiencies in the previous list.
   b. Ask the trainee to identify the missing or inappropriate steps in this plan and to indicate why his proposed revisions are necessary.

Sample Test Item

You are employed as a product developer by a publishing company. You have just received the following memo from the assistant editor. The note is accompanied by a draft in manuscript form about two paragraphs long as indicated.

Memo To: Product Developer Smith
From: Assistant Editor Jones

"Please review the enclosed draft of a section of the teacher's manual for our Kindergarten Learning to Think Program. Send your comments for possible revision to me. It isn't necessary to rewrite the stuff. Just let me know what you think about it."

Teacher's Manual
Learning to Think — DRAFT — Page 5

The Learning to Think Program provides a highly replicable method of attaining the behavioral goals of the unit. In repeated tests, where all sources of variability were brought under a high degree of control, the performance of children in the specified population has consistently met the 90-90 criterion on the post-test.

One excellent feature of the program, therefore, is the way in which the administration of the unit has been brought under a rigorous level of control. All communications of the teacher are carefully standardized in terms of both wording and timing. Children's responses to each verbal stimulus are recorded in the workbook and given immediate reinforcement. It is this high degree of control over the classroom setting which provides a major advantage in efficient production of the specified performance. The teacher is never left in doubt as to what to do.

Send your reply to the memo by writing about 30 words.

Scoring key:

1.	Technical level of presentation too high for teachers	2 points
2.	Flavor of control too repulsive for teachers	2 points
3.	Implied role for teacher is a mechanical one	2 points
4.	Workbooks seen as the major instructional activity	2 points
5.	General style and presentation of the reply	2 points
	Total	10 points

IV. Procedural Information Involving Personnel

A good product developer or evaluator should know a lot about how and where decisions are made in various industries concerned with instructional products. He needs to know a lot of factual information about how such an industry operates. An information type test could be developed to see how well the trainee had learned to find his way around.

A. Competency

When presented with the problem of product development involving other personnel for decisions or services, the trainee will indicate who should be contacted and the nature of the contact.

B. Test Generating Procedure

Make a list of the points in the development of products where other persons will need to be contacted, (1) within a particular organization concerned with product development or (2) with individuals outside the organization. For each test item, present the trainee with a description of a project involving the development of a product. At a given point describe a problem which involves a necessary contact with other persons (although this latter point is not indicated). The trainees response is scored in terms of the adequacy with which he identifies persons whose judgments, services, or decisions are necessary and the adequacy with which he makes it clear why these are important.

Sample Test Item for Competency 4.

You are ready to have materials tried out with a group of typical third graders for an instructional program. Unfortunately, it is in the middle of July and no private or public schools are in session. How will you proceed to get subjects? The try-out will take about two weeks with six children.

1. Contact the school principal in the neighborhood to see if enough school children might be recruited.
2. Enlist the cooperation of your fellow employees in "rounding up" their own children if they are in the third grade.
3. The Episcopal Church has a two-week church school going so contact the rector.
*4. Make an appointment to see the director of the day care centers, under the supervision of the schools.
5. Talk to a third grade teacher to see if she can get some of the children in her last year's class together.

V. Communication with Agency Personnel

An important aspect of product development is the ability to communicate within the atmosphere of many agencies. Trainees frequently have had social contacts limited to academia and are inept in dealing with personnel in the industrial world. For this competency an adequate vocabulary, comprehension of words, sentences and paragraphs, as mentioned earlier is clearly required. But more is involved: one must be able to pick up the nuances of meaning and feeling informally expressed in a conversation, a memo, or letter. While the following procedure, proposed as a way of defining this outcome, involves only "listening comprehension," it is assumed that trainees will also be able to express themselves as necessary.

A. Competency

The trainee will identify the affective as well as cognitive meaning expressed informally in a communication relating to product development.

B. Test Generating Procedure

Identify the kinds of situations where comment carrying an important approach-avoidance implications is present, where two conditions are met: the situation is one likely to be encountered by a product developer, and the appropriate interpretation will facilitate further relationships in the organization.

Select several of these situations and for each one prepare either a (1) dialogue between two persons where the conversation deals with product development, or (2) a written message in the form of a memo or letter which might be received by a product developer.

Examples of Dialogue Settings

1. Two school people (a curriculum supervisor and a teacher) discussing flexible scheduling, modules, and the platoon system.
2. Two television personnel, one a program director and the other a technician, talking about changes needed in taping a program.
3. A film production manager discusses with a photographer his evaluation of a strip film.
4. A training director for an aircraft company and a plant manager are discussing a new in-service training program being prepared.

Examples of Written Message

1. A message from the head of production services asking for a go-ahead with a printing job but indicating that he has serious reservations about certain technical aspects of the assignment, a reservation which is implicitly expressed but should be noted by the trainee.
2. A copy of a formal letter by the president of the company presumably "backing up" the product developer's plans but in reality showing considerable doubt about the value of the product.
3. A note from the supervisor giving a tentative agenda for a meeting to assess progress on the product. The items so casually listed reflect the supervisor's own views as to how the plans might be changed.
4. A copy of a letter written by a classroom teacher to the principal subtly expressing the view that she is being threatened by the way the product is being introduced into her classroom.

Prepare the dialogue for a sound or a TV tape. It may also be presented in printed form. The trainee is then presented with a multiple-choice test asking him to interpret the dialogue. Printed messages may be in typewritten or in handwritten form.

Examples of Questions

1. What did A tell B to do?
2. Why did B object?
3. How did B feel about the situation?
4. What compromises was A willing to make?
5. What does A think of the product?
6. How does A feel about the development plans?
7. What problem, if any, is raised by this memo?
8. Suppose you sent a letter saying that you agree; what would be likely consequences?

Sample Test Item

Assume that you are standing in the corridor of a film production company talking to the production manager. As a technician walks by, the manager turns to him and says:

"Hey, Bill, you know the slides we copied yesterday? Well, there was too much contrast build-up."

"I can't understand it, chief. We shot it with a strobe."

"Well that equipment must be bugged. Try something else."

"O.K. Chief. I'll take care of it."

"By the way, Bill, you didn't have any hot spots this time."

"Well, it's the fault of that guy Jim, you gave me for a helper. See you later."

Vocabulary Item

1. What seems to be the problem in this conversation?

   a. The colors in the picture were washed out.
   b. The objects in the scene were improperly arranged.
   c. There were too many reflections.
   *d. The details in the shadows were not clear.
   e. The colors were not faithful.

Information Item

2. What might Bill do about the problem?

   a. Use a .06 neutral density filter.
   *b. Use quartz lights and postflash the film.
   c. Use lamps with a higher wattage.
   d. Use an approximate diffusion filter.
   e. Use a shorter exposure time.

Interpretation Item

3. What does Bill think about his helper Jim?

   a. He is using his as a scapegoat.
   *b. He is complimenting him.
   c. He is blaming the "chief" for assigning him.

Product Evaluation Competencies

We turn now to the objectives for our product evaluation trainees.

At the conclusion of certain elements of the training program, product evaluation trainees will be able to do:

*1. Objective. Aid consumer groups to articulate more explicitly the objectives they wish a given product to accomplish.

Measurement Procedure.

A. Objective will be assessed by

1. A contrived interview test situation, where the trainee interacts with a staff member who is playing the role of an educational consumer.

2. The staff member-actor will have several precise instructional objectives in mind, but will present loose, inexplicit goals to the trainee.

3. The degree to which the trainee can ferret out the measurable instructional objectives will provide an index of the trainee's competence.

B. Criterion

1. The primary determinant in this simulation situation will be the congruence of the objectives finally decided upon by the trainee with those originally identified by the staff member-actor. (We'll have to sharpen this procedure considerably, for there are obvious difficulties in using such a measuring device. Nevertheless, this approach will provide a close simulation of what we actually wish product evaluators to do when working with educational consumers.)

2. Objective. Infer legitimate measurable instructional objectives from extant educational products, such objectives to possess the following attributes whenever possible:

(a) content generality, (b) criteria of adequacy by which to judge the acceptability of a learner's constructed response (as opposed to selected response), (c) a range of cognitive and affective learner behaviors (and psychomotor, if relevant).

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Trainees will be given a variety of products and any accompanying reference materials, for example, instructor's manuals, then asked to infer the objectives from the materials.

2. The trainee will also be obliged to present a statement defending his inferred objectives.

B. Criteria

1. The logical consistency and evidence-supported inferences made by the trainee will be judged by staff members.

2. The attributes possessed by the inferred objectives, as outlined above, e.g., content generality, will serve as a second criterion of the attainment of this objective.

*3. Objective. Generate a wide range of measurable objectives to assess many and diverse types of learner outcomes, e.g., high level cognitive and affective outcomes, using both standard and more esoteric measurement tactics, for example, unobtrusive measures.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Trainees will be given a series of general, non-behavioral objectives and asked to generate alternatives to assess attainment of the objective.

2. Requirements will be supplied in some cases, for example, trainees will be asked to supply at least three measures which would be used to assess cognitive learner behavior at higher then the lowest level on the Bloom taxonomy.

B. Criterion

1. The number of types of student objectives generated as well as their congruence with the posited specifications, e.g., in the objective domain and at the prescribed level, will serve as standard for judging trainee performance.

*4. Objective. Devise a range of defensible criterion-referenced measures to assess the learner's attainment of the diverse objectives associated with number three above. Defensibility here implies the competence to employ both standard and very recently devised techniques for improving the adequacy, e.g., reliability and validity, of the criterion-referenced measures.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Essay tests can be used to assess the familiarity of trainees with recent advances in the measurement field, particularly having to do with tactics for improving criterion-referenced measurement techniques.

2. Given measurable objectives and situational constraints, e.g., time available for testing, cost of measuring procedures, cost of reproducing measurement devices, etc., the trainee will have to generate and, via both a priori (content validity) and a posteriori (field trials) methods, defend the adequacy of the measures devised.

B. Criteria.

1. Essay questions can be judged on the basis of the trainee's display of current information regarding the development and improvement of criterion-reference tests. We will be particularly attentive to his ability to discriminate between measurement procedures more suitable for norm-referenced measures than for criterion-referenced measures.

2. The staff's judgment of the rigorousness and technical adequacy of the procedures followed will serve as the prime criterion by which to judge this objective. In particular, the procedures employed for securing content validity and for treating try out data will be scrutinized. The trainee's written rationale for his actions will be inspected for cogency.

*5. Objective. Construct the requisite documents for delineating a domain-referenced achievement testing scheme (Hively, 1970) whereby the congruency between objectives and measuring procedures can be increased.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. This objective will be assessed by having the trainees produce item forms according to a domain-referenced achievement testing approach. The trainee will be given several measurable objectives and asked to produce an item form for each which could guide a test item writer. (Test item here is used in the broad sense, signifying more than mere paper and pencil measures.)

B. Criteria

1. The item forms produced by the trainees can be judged both on internal attributes, that is, the judged likelihood that the forms would yield homogeneous test items.

2. The item forms to be given to item writers who will produce items according to those forms, the homogeneity of the items being subsequently verified on the basis of field testing with appropriate learners.

6. Objective. Devise economically efficient matrix sampling schemes whereby learner behaviors resulting from the use of instructional products can be secured, i.e., involving both person sampling and item sampling of learner behaviors.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. The trainee will be obliged to prepare a written plan for securing learner data via a matrix sampling scheme.

B. Criterion

1. The technical adequacy of the plan will be the primary criterion for judgment, that is, gross flaws in the item sampling procedure, having too few or too many to be completed by each learner, etc.

*7. Objective. Detect unanticipated outcomes which emerge from learners' use of instructional products.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. This objective would be assessed by providing a variety of real or fictitious anecdotal test data associated with the use of an instructional product. Embedded in the anecdotal and test data will be negative and positive instances other than those associated with the instructional objectives for which the product has been selected. The trainee's task will be to detect any such anticipated outcomes.

B. Criterion

1. The accuracy with which the built-in anticipated outcomes are identified will serve as the criterion.

*8. Objective. Devise plans for gathering learner post-instruction performance data so that reasonable inferences can be made regarding the nature of the impact of instructional products on the learner's behavior. For instance, trainees would have to be conversant with the advantages and limitations (for evaluation) or certain research designs such as the interrupted time series design.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. A series of hypothetical situations would be presented to the learner wherein he is required to recommend an evaluation design which could be employed to produce the required inferences regarding the instructional product's effectiveness. Certain elements will be built into the description which should incline the knowledgeable trainee to select certain designs in preference to others.

B. Criterion

1. Judiciousness of selection of designs consistent with the factors built into the simulated situations, for example, if the pretest measurement is clearly reactive in nature, the trainee will eschew all variants of pretest-post-test designs and will choose, instead, designs such as the post-test only control group design.

*9. Objective. Conduct analyses of data such that both hypotheses testing and estimation statistics are yielded, thereby permitting relationships among variables to be detected as well as the magnitude of impact produced by the use of the instructional product.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. Fictitious written or oral situations will be presented to the learner wherein he is asked to describe the data analysis techniques which would be suitable.

2. These would be constructed response test items, rather than multiple choice measures, so that they will approximate real life situations more closely.

B. Criterion

1. Consonance of data analysis techniques suggested with requirements of the fictitious situation, for example, the use of estimation procedures when magnitude of impact is desired.

*10. Objective. Make recommendations regarding adoption of specified instructional products within a cost/effectiveness context. Effectiveness is to be defined in terms of learner growth. Costs refer not only to time requirements, actual financial costs, but all other related costs such as teacher morale, public acceptance, etc.

Measurement Procedure.

A. Achievement of the objective will be assessed by

1. A written examination, in which a variety of data are presented to the trainee, both initial expectations of the consumers, objectives of the instructional products, field tests results, etc. The task of the trainee will be to write a defensible recommendation, complete with elaborate justification, regarding the adoption of the instructional product under scrutiny.

2. Providing a real product evaluation situation for the trainee, and having him follow a product through its implementation and testing, in order that he provide a clear recommendation for the potential user regarding the product's value.

B. Criterion

1. The report which the trainee prepares will serve as the data to be judged regarding the attainment of this objective. Defensibility of decisions based upon data, inclusiveness of criteria employed by the trainee, etc., will serve to judge whether this objective, in essence, will constitute the heart of a comprehensive performance test of the product evaluator's skill.

11. Objective. Reconcile the disagreements between products designed to attain specific goals and user expectations (goal requirements) which are at some, but not complete, variance with the product's intended goals.

Measurement Procedures.

A. The objective will be assessed by

1. The trainee will be given a fictitious written description of a situation where the product's goals and the user's expectations are in some, but not complete disagreement.

2. The trainee will be asked to generate a scheme for taking these disagreements into consideration in order to assist the consumer to make a judgment regarding the adequacy of the product.

B. Criterion

1. The comprehensive systematization of the scheme used by the trainee will serve to indicate whether this objective has been achieved. For example, a scheme such as the Program Fair Evaluation (Popham, 1969) would prove serviceable in such instances, as would comparable analytical approaches.

STUDENTS

As suggested by the nature of our dual duration training programs, we shall have two types of trainees. Some will be with us for an entire calendar year, some for only a week or so. Let's examine both types.

Long-term trainees. Long-term trainees will either be degree candidates or non-degree candidates. If they wish no degree, either master's or doctor's degrees, then all training will take place under the complete supervision of the Consortium. If the trainee wishes to secure a master's or doctor's degree, then a closer relationship will occur with the UCLA Graduate School of Education under whose auspices the degrees must be granted. The existence of established degree programs in both of these specialities, namely, Instructional Product Research and Educational Evaluation, will render the consummation of a degree program by trainees relatively routine.

The master's degree candidates will normally remain from three to six months beyond his calendar year training program to complete thesis requirements and courses which could not be taken because of conflicts with training program requirements.

The doctor's degree candidate will normally remain one to two years after completion of his training program calendar year in order to take remaining course work and complete a dissertation, qualifying exams, etc. If the doctoral candidate enters the program with a master's degree already, then he would normally take one year beyond the basic calendar year training program.

Many of the training sequences for either product evaluators or product developers will be taught either by UCLA faculty or by competent professionals from consortium agencies who can be readily certified to offer regular coursework.

The long-term trainees will either choose the training program because one of its two phases interests them, much as a student now chooses a field of graduate study, or because their organization wishes to send them to receive training which will enable them to function more efficiently in that organization. We anticipate, for example, that

certain regional laboratories or commercial publishers will send some of their personnel to complete the long-term product development training sequences. Publishers and large school districts or state departments of education may send individuals wishing to complete the product evaluation training sequences.

Basic Criteria for Selection. In general, the following criteria will be employed in the selection of trainees.

A. A baccalaureate degree from an accredited institution; or the submission of evidence of productivity in any educational field.

B. A command of written English to be judged by a lengthy statement required in the application as well as by inspection of written work submitted, if any.

Specific preferences will be given to applicants as follows:

A. Applicants presently employed in development agencies.

Applicants with job responsibilities directly related to development or product evaluation will be given preference. One explanation is that such individuals would be able to make use of their training immediately upon completion of their program. Trainees would also be encouraged to set up in-service training programs and thus multiply the effects of the consortium training.

Representative of classes of individuals to be given preference (not in listed order) are as follows:

1. Private developers, e.g., publishing houses
2. School district personnel
3. Staffs of R and D centers and regional laboratories
4. Staffs of Title I and III projects

B. Minority group members.

Because the Consortium staff believes that members of minority groups may bring special insight to instructional problems for minority group learners, and in view of the key social significance of today's minority group educational problems, applicants who are minority group members will be given preference whenever other factors are relatively equal.

C. Needed specializations.

Applicants who intend to focus on areas of high priority would be screened favorably. Examples of such areas are urban instructional settings, bilingualism, vocational education, medical development, reading, and evaluation.

D. Supervisory role.

Applicants whose present employment requires the supervision of personnel would be given preference if their application indicates that they might have a relatively expanded sphere of influence.

E. Age.

Given equal qualifications, preference will be given to younger applicants, assuming they are likely to have a longer period of productivity, and may be more adaptable.

F. Media Experience.

Computer programmers, filmmakers, or other technical specialists, who apply will be given preference.

G. Intellectual Prowess.

If Graduate Record Examination or College Board scores are submitted, preference will be given to high scores. However, a modest score, e.g., 1,000 on the GRE, will not exclude the applicant, should be present other evidence, e.g., prior creative work.

Stipends. For a specific number of long-term trainees who are not already receiving salaries from the institutions sending them, such as a regional laboratory employee who continues to receive his normal salary from the laboratory, stipends will be provided. At the outset, until the Consortium training program becomes well known as a program where competencies are acquired and, thereafter one can secure high level professional employment, these stipends will have to be more numerous. As the training program's high quality is recognized, fewer of these stipends will be needed. Indeed, there has been some consideration of charging tuition fees after the program is well established, thereby defraying costs.

The stipend will be $2,400 to $2,800 per calendar year plus $500 per dependent and a one-way travel allowance from home to the training program of 10 cents per mile. For non-degree candidates, only one year's stipend is available. For a master's degree candidate up to one and one half years' stipends are available. For a doctoral candidate up to three years' stipends are available. The number of stipends requested per year will have to be used judiciously by the Consortium training staff, that is, it will be to their advantage to expedite the progress of degree candidates through our program so that other trainees can use the stipends.

Because of the heavier emphasis on development training in our program, we are requesting ten stipends for product developers and five stipends for product evaluators. As we anticipate that about half of our trainees will not be degree candidates, some of the stipends will be used for those trainees as well as for degree candidates. We expect 20 full-time development trainees the first year and 10 full-time evaluation trainees during that year.

Short-term trainees. In numbers alone we anticipate reaching far more individuals through our short-term training programs. Most of these will be carried out at the Training Laboratory or on site at a consortium member's locale. Some will be conducted at different points throughout the U.S., in response to particular training requirements. We will definitely develop the capacity during the first year to take a one to two weeks staff into the field to provide the initial elements of a training program which, by careful follow-up via correspondence and telephone consultation, can be extended for up to one year. These short-term institutes would be held in locales particularly in need of training. For example, a delegation of black educational researchers recently submitted a request to the AERA Task Force on the Training of Educational Researchers that a series of special training activities be made available for black educational researchers in the South who, because of local situations, could not secure such training. We will take a short-term training program into that geographic region to prepare product developers and/or product evaluators depending upon the need as evidenced by advanced proselyting efforts.

Most of the short-term sequences would be of a general nature. Follow-up readings, instructional programs, and telephone-correspondence interaction would be used to increase the potency of the instruction. Other short sessions would be highly particularized, dealing with special problems, for example, the use of learner performance data in the revision of products or the construction of objectives and measures for published materials which possess none. Often, these short-term sessions will be solicited by particular organizations, e.g., an R and D Center.

We anticipate reaching between 200-300 trainees the first year through these short-term efforts, some of which may last as long as several months. During the second year of the program's operation we should reach between 300 and 400 individuals. Some of the individuals trained in the short sessions, we surmise, will wish to undertake a long-term training program at a later point.

ADMINISTRATION OF THE TRAINING PROGRAM

While for financial purposes UCLA will be the prime contractor, the Consortium training program will be administered by the full-time staff of the training program through the training program director as approved by a governing board constituted by one designated representative of each Consortium agency. All major policies guiding the Consortium must be democratically approved by this governing board. The director and the full-time staff (or nearly full-time) will implement these policies.

The governing board will meet for half-day sessions once every two months on a regular basis but all board members will also be invited to staff meetings on alternate months for informational purposes. Special governing board meetings may be called by the elected chairman of the governing board with the approval of at least one-half of the board members. A token honorarium of $50 will be given to each governing board member for his attendance at each meeting.

Working relationships between the Consortium member agencies and the Consortium training staff will be coordinated by the full-time Consortium staff under policies approved by the governing board.

EVALUATION

Because of the results-orientation guiding this program, both in terms of its products as well as its process, the evaluation of the program will be comprehensive and rather straightforward.

For both the product development training sequences and the product evaluation training sequences we shall systematically monitor the ability of the trainees to display the desired skills. Measurement of the long-term trainees will occur every three months on a matrix sampling basis whereby we shall randomly sample both trainees and objectives (thereby reducing the personal threat of the measurement since different trainees will be completing different test measures). Results of this quarterly measurement will be summarized and transmitted to members of the governing board, all staff, all trainees, and appropriate USOE officials.

Systematic measurement of the results of short-term training sequences will also be undertaken, typically at the close of such sessions, although perhaps earlier for the more extended of the short-term activities.

Performance Tests. In addition to the use of the measurement devices related to each objective, we shall develop some brand new performance test measures to be used with both product developers and product evaluators. The essence of each performance test will be that it provides a simulated opportunity for the trainee to perform, generally, the competencies he has supposedly learned.

For the product development performance tests we shall develop several versions of a test which presents to the developer the task of devising a replicable instructional sequence to accomplish prespecified instructional objectives. Constraints will be present

regarding available instructional time, cost of materials, etc., but the trainee will otherwise be free to devise a product that accomplishes the objectives. We shall observe which of the alternative development tactics each trainee employs, for these will be useful in modifying our program, but the key index of whether the trainee has passed the test will emerge when the product is tried out with learners drawn randomly from a group of eligible subjects. The product, taking no more than 40 minutes of learner time, will be field tested with approximately a dozen such learners and pre- and post-instruction scores on measures based on the objective will reveal the success of the product. As time goes by we can begin to establish defensible norms for these tests so that each learner's skill can ultimately be contrasted with some reasonable criterion. As indicated above, several different performance tests for different subject matters and for different type learners will be developed.

For the product evaluators a different sort of performance test strategy will be implemented. Sets of simulated problems in evaluating extant (fictitious) instructional materials will be prepared for the trainee along with a host of data, some relevant, some irrelevant. The trainee will be required to prepare an evaluation report and a set of recommendations regarding the fictitious product. These reports will be carefully evaluated, using well delineated jury techniques, first by members of the training program staff, then by outside evaluation specialists. As with the performance tests in development, we will be able to develop norms for such tests over a period of several years.

Results of performance tests for product developers and evaluators will be reported at the close of the training programs for which they are used. Generally, they will be used only for long-term training programs, but there are some instances in which they could be used for short-term training efforts.

In addition to trainee results on standard examinations and performance tests, the training program staff will also assemble pertinent data regarding such factors as the number of trainees completing the program, positions secured after training, etc.

Systematic Study of Procedures Used by Trainees. The availability of performance tests for product developers and evaluators will permit the consortium staff to undertake the systematic analysis of the techniques used by developers and evaluators in their efforts to satisfy the tasks set by the performance tests. Particularly with respect to the performance tests for developers, where pupil performance on measures (after using the newly developed product) will serve as the criterion, we will be able to design small scale correlational and experimental studies in order to identify whether certain practices, that is, development tactics, yield greater learner growth. By designing these studies in such a way that learner entry behavior is controlled, we can discern, for example, whether developers who have been directed to prepared products according to specified procedures actually produce superior materials.

Fortunately, two members of the consortium staff, John McNeil and James Popham, have been developing and studying this type of performance test for the past five years. Their experience will be invaluable in designing pefformance tests which satisfy both criterion-referenced and norm-referenced measurement standards, that is, the tests must be totally congruent with the task (objective) given the developer but yet must be capable of producing variant scores among those tested. McNeil and Popham have recently synthesized their thinking on this relatively unused approach to proficiency assessment in their chapter on teacher competence assessment in the revision of the Handbook of Research on Teaching (1972).

STAFF

Visiting Faculty

Not only does our consortium possess a continuing staff of inordinate skill, but we have also persuaded the following outstanding educational leaders to participate as visiting faculty whose contributions would range from as little as one or two days a year to perhaps several weeks or months. Each of the following people, in response to a personal letter or telephone conversation, have indicated their willingness to explore details of a visiting faculty relationship with the consortium:

Fred N. Kerlinger, New York University

Arthur A. Lumsdaine, University of Washington

Susan M. Markle, University of Illinois, Chicago

Jason Millman, Cornell University

Ernst Z. Rothkopf, Bell Telephone Laboratories

Robert E. Stake, University of Illinois

Patrick Suppes, Stanford University

Robert M.W. Travers, Western Michigan University

Ralph W. Tyler, Chicago, Illinois

Regular Staff

MARVIN C. ALKIN, Center for the Study of Evaluation.

Dr. Alkin has been playing an increasingly prominent role during the past two years in the nation's educational evaluation efforts. One recent week alone, for example, he has consulted with the Bureau of Elementary and Secondary Education of USOE as a member of a review panel evaluating the Stanford Research Institute's evaluation of the National Follow-through Program, and as a special consultant to the New Mexico Legislature in evaluating their statewide evaluation program. As director of CSE, his national perspective with respect to a newer conception of educational evaluation as a comprehensive aid for decision-makers ranks him with Stufflebeam, Guba, Provus and Stake as first-line evaluation theorists.

Dr. Alkin is the Director of the Center for the Study of Evaluation, University of California, Los Angeles, and Associate Professor of Educational Administration, Graduate School of Education, University of California, Los Angeles. His present professional activities include the following: Field Reader for the U.S. Office of Education in the areas of Cost-Effectiveness, Educational Finance, Management Information Systems and Evaluation of School Systems; Contributing Editor, Educational Technology.

Dr. Alkin is the author of approximately 30 articles and reports and 20 papers presented to professional associations. He is a member of the American Educational Research Association, American Association of School Administrators, National Society for the Study of Education, and Phi Delta Kappa.

Dr. Alkin received his B.A. in Mathematics and M.A. in Education from San Jose State College. He received his Ed.D. in Educational Administration from Stanford University.

As Director of CSE, his writings on the subject of educational evaluation have been attracting national interest. His expertise in designing training programs for the evaluation personnel will be most vital in designing the proposed training scheme.

DONALD E. ANDERSON, American Tape Duplicators.

Donald E. Anderson, Vice-President and General Manager of ATD, is expert in audio-tape production and duplication. He has a background in recording, editing and mastering of educational tapes, as well as a thorough production knowledge of duplication packaging and the record keeping involved with the entire process.

EVA L. BAKER, Graduate School of Education, UCLA.

Dr. Baker's experience as a member of the SWRL professional staff, a kay CSE staff member, and an associate director of the UCLA Product Research Training Program has qualified her to make unique contributions to the theoretical and practical aspects of the projected training program. She has already contributed the chapter on educational product development for Macmillan's Encyclopedia of Education and is currently writing the major chapter on educational development for the second edition of The Handbook of Research on Teaching.

Dr. Baker is an Assistant Professor at the UCLA Graduate School of Education, and a Co-director of the Instructional Objectives Exchange, a nonprofit educational corporation. She received her B.A. in Elglish and M.A. and Ed.D. in Education from the University of California, Los Angeles. She is chairman of the graduate program in Instructional Product Research.

Her teaching interests cover courses in instruction, instructional product research, and teacher education. Research training includes the following: Southwest Regional Laboratory Summer Training Sessions for Educational Researchers, Summer 1967; American Educational Research Association Presession Staff on Instructional Product Development, 1968; California Educational Research Association Staff on Instructional Product Development, 1968; California Educational Research Association Chairman of Presessions, 1969; Southwest Regional Laboratory for Educational Research and Development, Staff Training Element; Peace Corps Training Teacher Preparation Director, 1968; Staff, UCLA Center for the Study of Evaluation; Professional Staff, Southwest Regional Laboratory for Educational Research and Development, 1967-1969. She has produced over 50 articles, reports, and papers and she is the current recipient of a materials development grant to prepare an instructional product to train educational developers.

GRANT R. CARY, BFA Educational Media.

Thirteen years experience in the Los Angeles City Schools as a teacher of Science and Mathematics, television consultant, Adult Education teacher and consultant, Audio-Visual Specialist; nine years experience as a Junior College Instructor, Evening Division; Coordinator for Adult Education television programs produced at KABC Television; co-founder and partner, Sigma Educational Films, Assistant Director of Product Development, BFA Educational Media.

JOHN E. COULSON, System Development Corporation.

Dr. John E. Coulson, a Senior Research Leader at System Development Corporation, is Assistant Manager of the Education Systems Department. In this position, Dr. Coulson supervises and participates in a wide range of projects involving the development of educational technology and the application of this technology in operational school systems. Dr. Coulson is project leader of the Head Start Evaluation that SDC is conducting for the Office of Child Development of the U.S. Department of Health, Education and Welfare. This is very similar to the work herein proposed in that it is a national analysis of the impact of Head Start programs on different children and their families and involves

detailed computer manipulation of data. His activities since joining SDC's education effort in 1959 have included studies of programmed instruction and computer-assisted instruction; design of computer-based laboratory facilities for the study of complex interactions in the teaching/learning process; application of tutorial techniques for empirical development of lesson materials; and development of criterion-referenced diagnostic instruments.

Dr. Coulson holds B.S. and M.A. degrees from the University of Arizona, and a Ph.D. in psychology from Columbia University. He was a Lecturer in the School of Education at UCLA in 1965-66. He is a consultant to the Air Training Command, and a member of the Review Panel for the Los Angeles City School District for Title III (NDEA) proposals. He is a Fellow of the American Psychological Association, and a member of the American Educational Research Association, the National Committee for Measurement in Education, and the American Association for the Advancement of Science.

ROBERT T. FILEP, Institute for Educational Development.

Robert T. Filep is Vice President of the Institute for Educational Development where he is responsible for the operation of the Western Regional Office and major studies. These currently include an assessment of ten years of Title VII-NDEA research and dissemination of educational media for the U.S. Office of Education; and development of a cost-effectiveness model for comparison of CAI, PI, and Traditional Instruction for the Bureau of Naval Personnel.

His Ph.D. degree in Education was granted by the University of Southern California where he majored in Instructional technology and psychology, investigating learner characteristics as related to various programmed media. He received his B.A. degree in Education from Rutgers University and an M.A. degree in Psychology from Columbia University.

Having graduated from Rutgers in 1953, he then taught general science at Teaneck High School, Teaneck, New Jersey, until 1956, and also served on active duty as an officer in the U.S. Air Force during this period. Following completion of his Master's degree in 1957, Dr. Filep was appointed Assistant Director of Admissions at Renssalaer Polytechnic Institute, Troy, New York, with additional responsibilities for the advanced program. In 1959, he was appointed Dean of Admissions and Financial Aid at Mills College of Education in New York City. He later became Secretary of the Center for Programmed Instruction, Inc., New York City, where his principal duties were Director of the Information and Training Division, Editor of the Bulletin, Programmed Instruction, and researcher responsible for examining student interactions with programmed instruction. In 1963, Dr. Filep received an appointment as Associate Investigator of the Cinema Research Division at the University of Southern California, where he taught and periodically teaches graduate and undergraduate level courses.

He is vice president of the Educational Media Council and is currently a member of the EDUCOM (Interuniversity Communications Council), Task Force on Continuing Education, and Advisor to the ERIC Clearinghous on Early Childhood Education. He has also been a part-time faculty member of the University of California, Los Angeles, in the area of Education Psychology.

Dr. Filep is past president of the National Society for Programmed Instruction, and is a member of the AERA, APA, AAAS, Phi Delta Kappa, and DAVI. He is editor of, and contributor to, Prospectives in Programming; a former department editor for AV Communication Review; contributing editor to Educational Technology; and contributor to the Teacher's Encyclopedia and the Annual Review of Information Science and Technology. Dr. Filep is Biological Sciences Curriculum Study Special materials author and has also written programmed materials (text and CAI) in crystallography, spatial analysis of electrocardiograms, and biochemistry. He has authored articles in a number of professional publications.

ROBERT GERLETTI, Los Angeles County Superintendent of Schools Office.

Director of the Division of Educational Media, is a graduate of the University of Southern California, and adjunct professor at that institution; Director of the Regional Educational Television Association of California; past president of several state and national professional associations in the field of educational media.

MRS. PATRICIA HARRISON, Educational Development Corporation.

Mrs. Harrison is EDC's Vice President for Production. Prior to joining EDC as Graphic Arts Director in 1966, Mrs. Harrison ran her own Design Studio in Palo Alto. She also directed graphics work for Varian Associates. Her designs for instructional materials have won several awards.

EVAN R. KEISLAR, Graduate School of Education, UCLA.

Professor Keislar possesses a national reputation as an experimental researcher concerned with instruction and learning. As a senior researcher, Dr. Keislar has chosen his areas of inquiry carefully during the past decade and, not surprisingly, much of his work has been related, directly or indirectly, to the area of educational product development. From the earliest days of SWRL's existence, for example, Dr. Keislar played a prominent role in development activities, at one time heading one of the Laboratory's major projects. His continuing relationship with SWRL attests to his interest in educational development as an enterprise amenable to analysis and improvement.

Dr. Keislar is a Professor at the Graduate School of Education, University of California, Los Angeles. He received his B.A. in Mathematics from the College of Pacific, his M.A. in Religious Education, from the Pacific School of Religion, and his Ph.D. in Educational Psychology from the University of California.

Dr. Keislar has been a Fellow for the Center for Advanced Study in the Behavioral Sciences, Stanford University, California, 1963-1964; an Assistant Professor, Tufts College, Medford, Oregon, 1946-1948; a Research Associate, College Entrance Examination Board, Princeton, New Jersey, 1945-1946; and an Instructor of Psychology, Princeton University, 1946. He has also served as Consulting Editor to the American Educational Research Journal and Review Editor, 1966-1967. He was a member of the Committee of Learning and the Educational Process, Social Science Research Council, 1962-1966.

WALTER R. KINGSON, Theater Arts Department, UCLA.

Dr. Kingson is a Professor on the Television-Film Faculty, University of California at Los Angeles at present, and since 1949. He received his B.A. from the University of Wisconsin, 1939, M.A. from University of Wisconsin, 1940, did Graduate work at the University of Illinois, 1941 and at Columbia University, 1946; and his Ed.D. from New York University, 1948. It was the first doctor's degree granted unde Charles Siepmann in Communications in Education.

At UCLA Dr. Kingson is in charge of the Workshop in Educational Broadcasting, offered for students, teachers and administrators who wish to use broadcast media in the classroom or for general purposes.

He had done varied free-lance assignments for radio, television, and film in Hollywood, and an active member of AFTRA and SAG since 1950. In 1969-70, Dr. Kingson was associate producer and director of "American Economic History" an innovative teaching project of the History Department, UCLA, using multimedia for college teaching. In 1965-66, he was Fulbright Scholar in Educational Television, at the University of London. In Spring of 1966 he was a visiting lecturer in educational television in Finland, Sweden, Norway, Denmark, France, and Germany.

Dr. Kingson was consultant in educational television at Television Espanola, the Spanish national broadcasting organization in 1966. In Fall of 1962, he was on a United Nationa (UNESCO) assignment as specialist in broadcasting to set up a Broadcast Training Centre in Israel. This involved planning and organizing curriculum, library, demonstration materials, staff, and physical plant to train new personnel for Kol Yisrael, the Israeli broadcasting organization. The Centre is now operating successfully.

Dr. Kingson was co-author of the following: Broadcasting Television and Radio, Prentice Hall, New York, 1955; Radio Drama Acting and Directing, Holt, Rinehart and Winston, New York, 1950. (Revised edition); Radio Drama Production, Rinehart & Co., New York, 1946; Television Directing and Performance, Holt, Rinehart and Winston, New York, 1965.

REX MALCOLM, BFA Educational Media.

Twelve years experience in the Los Angeles City schools as a teacher of English and Social Studies, Curriculum consultant, television consultant, Audio-Visual Specialist; Associate Director of the Special Media Institute Project at USC; co-author of the California State adapted text The Earth: Maps and Globes, Noble & Noble; co-author of the Holt, Reinhardt, & Winston text, Knowing Our Neighbors in the Eastern Hemisphere; in-service training consultant to various school districts; audiovisual consultant to various media producers; Director of Product Development, BFA Educational Media.

JOHN D. McNEIL, Graduate School of Education, UCLA.

Dr. John D. McNeil is Professor of Education, Graduate School of Education, University of California, Los Angeles and a Co-director of the Instructional Objectives Exchange, a nonprofit educational corporation. His teaching has been concerned with two broad instructional objectives: (1) deeper analysis of key concepts involved in the various branches of knowledge contributing to objectives and (2) development of research methodology for experimental studies in the selection and ordering of learning experiences. Many of these studies have been in the area of reading and include the identification and teaching of prerequisite skills for success in school. He has taught courses in foundations of education and elementary and secondary education as well as graduate courses and doctoral seminars in curriculum and supervision. McNeil has developed courses and experimental programs in teacher education for the military, Peace Corps, and administrative leaders as well as numerous other projects involved in development activities. As one of three co-authors for a prominent reading series published by a major commercial firm, he is in a position to bring broad insights to the design of development and evaluation training programs.

Dr. McNeil received his B.A. in English and M.A. in School Administration from San Diego State College. He received his Ed.D. in Curriculum and Teaching from Teachers College, Columbia University.

Dr. McNeil's early association with programmed instruction research and with broader aspects of instructional materials preparation have led to a continuing in levels of educational development. He has been a participant in the UCLA Product Research Training Program since its organization four years ago. He has served as a consultant for SWRL in public schools. His procedure for analysis, appraisal and improvement of instruction, "Supervision by Objectives" is now used in many school systems. His publications include: Supervision; A Synthesis of Thought and Action (Co-author), New York; McGraw Hill Book Company, Inc., 1969; Curriculum Administration; Basic Principles of Curriculum Instruction, New York; The Macmillan Company, 1965; co-author Read Series, American Book Company, 1968.

MAYNARD ORME, KCET.

Maynard Orme is director, Educational Services at KCET. He holds a B.A. in Music from U.C. Berkeley, and an M.A. in Theater Arts at UCLA, and is currently

working on his doctorate in Instructional Product Development in the Department of Education at UCLA. Former Producer-Director at KVCR-TV, San Bernardino, he holds a life credential for Junior College teaching in theater arts and music, specializing in film and TV production. He is the vice president and member of the Board of Directors of the Gifted Children's Association of Los Angeles. Mr. Orme is also a member of the Teach Committee of the Hollywood Chapter of the Academy of Television, Arts and Sciences.

W. JAMES POPHAM, Graduate School of Education, UCLA.

Closely identified with educational product development for the past five years, Dr. Popham has authored what may represent the most extensive set of writings on the training of product developers. In 1967 he described short-term and long-range strategies for preparing product developers.[1] In 1968 he compiled and edited a comprehensive set of relevant working papers and training documents produced at SWRL.[2] His recent review of research related to product development appeared in 1969.[3] For several years he has directed research training presessions on product development for the American Educational Research Association and the California Educational Research Association. He has been the director of the UCLA Product Research Training Program since its establishment.

Dr. Popham is Professor of Education at the University of California, Los Angeles, and Co-Director of the Instructional Objectives Exchange, a nonprofit educational corporation. Dr. Popham received his B.A. in Philosophy and M.Ed. in Education from the University of Portland. He received his Ed.D. in Secondary Education from Indiana University.

Professor Popham's teaching interests are in (1) teacher education with a focus on explicit specification of the post-instruction competencies which learners should acquire and (2) the preparation of educational developers. His experience related to the training of educational research personnel include the following: Co-director, 1967 American Educational Research Association Presession, "Curriculum Research and Evaluation," New York, February, 1967; Co-director, 1968 American Educational Research Association Presession, "Instructional Product Research," Chicago, February 1968; Co-Chairman, 1968 Presessions Committee, California Educational Research Association, Berkeley, March, 1968; Director, 1968 California Educational Research Association Presession, "Instructional Product Research," Berkeley, March 1968; Director, Graduate Research Training Program (Title IV, ESEA), "Instructional Product Research and Development," University of California, Los Angeles, 1966-present; Chairman, 1969 American Educational Research Association Presessions Committee; Members, American Educational Research Training Task Force, 1968-present; Co-chairman, 1970 Presessions Committee, California Educational Research Association, San Francisco, February 1970; Member, Staff Training Element, Southwest Regional Laboratory for Educational Research and Development, 1966-present. His publications include: Educational Statistics: Use and Interpretation on, Harper and Row, 1967; Instructional Objectives, AERA Curriculum Evaluation Monograph No. 3, Rand McNally, 1969 (Co-author), Criterion - Referenced Measurement: An Introduction, Educational technology press, 1971 (Editor).

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1. Popham, W. James. "Instructional Product Development: Two Approaches to Training." AV Communication Review. Vol. 15, No. 4, Winter, 1967. pp. 402-411.
2. Developing Instructional Products: A Collection of Working Papers and Training Documents. Southwest Regional Laboratory for Educational Research and Development, October, 1968, 421 pp.
3. Popham, W. James, 1 "Curriculum Materials." Review of Educational Research. Vol. 39, No. 3, June, 1969. pp. 319-338.

GEORGE ROSATO, Educational Development Corporation.

Vice President and Editorial Director, Mr. Rosato has been with the company since 1961, associated as writer, editor, and project manager on nearly every major product developed by EDC. Formerly an instructor in English at Stanford, he also is an experienced journalist.

ADRIAN B. SANFORD, Educational Development Corporation.

Chairman of the Board and founder of Educational Development Corporation (EDC) of Palo Alto. He founded EDC in 1961 to develop innovative materials of instruction. These are distributed by major publishers including Ginn, Harper & Row, Holt, Macmillan, McGraw-Hill, Scott-Foresman, SRA, and others.

Reading programs from EDC have been used by millions of children. English and Language Arts books, as well as Science and Math materials, make up the largest part of EDC production.

Prior to founding EDC, Mr. Sanford ran his own educational consulting firm, Sanford Associates. From 1955 to 1960 he was a text editor for Harcourt, Brace Publishers in New York. He taught high school English for seven years and has additional experience teaching elementary school and college. He is the senior author of a six-book elementary text program published by the Macmillan Company called Reading Comprehension - part of the Spectrum series - and an eight-grade program published by Educational Progress Corporation (EPC), the Audio Reading Progress Laboratory. His articles have appeared in professional journals. A major article "Reading Comprehension" will appear in the forthcoming Encyclopedia of Education (Crowell-Collier and MacMillan). He also holds patents for educational devices.

He is a member of a number of professional organizations and is co-founder of the International Study Group for Mathematics Learning, having served as its first Executive Secretary. He is listed in Who's Who in the West (1967 -).

HARRY F. SILBERMAN, System Development Corporation.

Dr. Harry F. Silberman is Manager of the Education Systems Department in the Public Systems Division at System Development Corporation (SDC). He is responsible for all education work in which SDC is involved.

Dr. Silberman joined The RAND Corporation in July 1956 as a social scientist engaged in preparing the requirements and specifications for a major air defense system training program. When SDC began independent operations in December 1957, he was assigned responsibility for making initial improvement to the air defense simulation training program.

Since 1958 he has concentrated on problems of developing instructional materials for reading and mathematics instruction and has conducted numerous research studies on variables influencing the effectiveness of computer-based instruction. He has recently been concerned with integrated applications of computer time-sharing to problems of instruction, counseling and school administration.

Dr. Silberman holds B.A. and M.A. degrees from Chico State College and an Ed.D. degree in educational psychology from the University of California at Los Angeles. He is a Fellow of the American Psychological Association, the American Association for the Advancement of Science and the American Educational Research Association, and serves on several committees in these organizations. In addition, he has published numerous articles in psychological and educational professional journals.

SIDNEY P. SOLOW, Consolidated Film Industries.

Sidney P. Solow was born in Jersey City, New Jersey on September 15, 1910, and was graduated from New York University in 1930 with a Bachelor of Science Degree in Chemistry.

Mr. Solow was employed after graduation by Consolidated Film Industries, a subsidiary of Republic Pictures Corporation, as an Assistant Chemist at CFI's Fort Lee, New Jersey laboratory. He shortly became Chief Chemist and in 1936 was transferred to CFI Hollywood, where he was promoted to Plant Superintendent and later General Manager. In 1954, he was made a Vice President of Republic Pictures Corporation and was appointed to the Board of Directors in 1960. In 1964, his title was changed to that of President, Consolidated Film Industries Division of the Republic Corporation.

Mr. Solow is active in many industry and charitable organizations. He is a member of the Academy of Motion Picture Arts and Sciences, Academy of Television Arts and Sciences, a Fellow of the Society of Motion Picture and Television Engineers, and for many years has been Secretary and Allied Industries Chairman of the Motion Picture Permanent Charities Committee. Also, he has been active in the United Jewish Welfare Fund for many years, serving as Chairman of the Campaign for the Motion Picture Industry in 1966. He is an Associate Member of the American Society of Cinematographers and an Honorary Member of the American Cinema Editors. He served as President of the Association of Cinema Laboratories in 1966. Mr. Solow has also been a regular member of the faculty in the Department of Cinema at the University of Southern California since 1947, and was designated a full Professor in the spring of 1966.

RICHARD L. ZWEIG, American Tape Duplicators.

Richard L. Zweig is the principal author of the Rheem materials, which are in wide use throughout the United States. He has taught at UCLA, UCSB and Cal-State, Long Beach. He is currently directing a company of educational programmers producing educational tests and programs for school use in reading, spelling, mathematics, music and art. Mr. Zweig offers his staff of eight programers, artists and technicians to work on the project.

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APPENDIX A

A FORWARD LOOK

Background

During the first two months of this project, and even before, Professors Alkin, Baker, Keislar, McNeil, and Popham spent innumerable hours in (1) appraising the current status of training in the field of product development and product evaluation and (2) exploring methods of improving such training. The proposal in Appendix A represents their thinking in early August, 1970. In discussing the plan with USOE representatives, however, it became evident that the type of national training consortium envisaged in the proposal was viewed as being a few years away with respect to funding possibilities. Accordingly, we abandoned this conception of a training consortium and moved to organize a more limited, locally-based training enterprise. Nevertheless, with characteristic pride of progenitors, its authors believe the scheme was a solid one and thus offer it for the consideration of those concerned with devising future mechanisms for training educational research and research-related personnel.

A NATIONAL CONSORTIUM FOR TRAINING

EDUCATIONAL PRODUCT DEVELOPERS AND EVALUATORS

An analysis of the chief elements in any professional training program permits one to identify two major ingredients: (1) individuals or agencies in need of training and (2) individuals or agencies capable of providing training. Those in need of training have particular training requirements while those capable of providing training possess particular training resources.

Training requirements can be thought of as the skills sought by agencies or individuals in order to create or improve a particular professional capability. For example, district might wish to provide competencies for certain of its curriculum personnel so that these individuals could develop replicable instructional materials or could more expertly eveluate commercially developed instructional materials. Another type of training need is seen when an individual wishes to acquire a set of competencies which will permit him to secure a given kind of professional employment, e.g., as an educational developer.

Training resources are those capabilities possessed by agencies or individuals which permit them to carry out instructional programs designed to promote specific kinds of professional competencies. For instance, one type of training resource would be a doctoral level graduate training program for instructional product developers. Another type of training resource would be an individual who, perhaps in cooperation with one or more colleagues, possesses demonstrated capability to organize successful short term training programs outside the standard academic patterns, such as the presessions of the American Educational Research Association.

Now an ideal scheme for providing professional training would consist of perfectly matching those with training requirements and those with training resources so that agencies or individuals requiring particular sorts of training programs could secure those programs from the agencies or individuals possessing the capabilities to provide such programs. An optimal meshing of training requirements and training resources can be schematically displayed as in Figure 1.

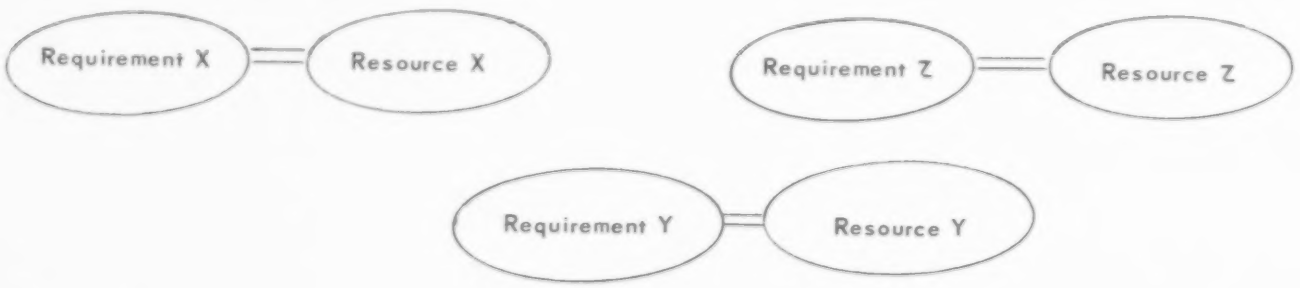

Figure 1. An optimal matching of professional training requirements and training resources

In some professional specialities one suspects that there currently exists a relatively efficient match between resources and requirements. Such is not the case in the fields of educational development and educational product evaluation. In these two critical arenas a situation exists characterized by insufficient resources, inarticulated requirements, and pervasive misinformation. In these two fields a confusing situation exists such as that seen in Figure 2 where training requirements are not matched with

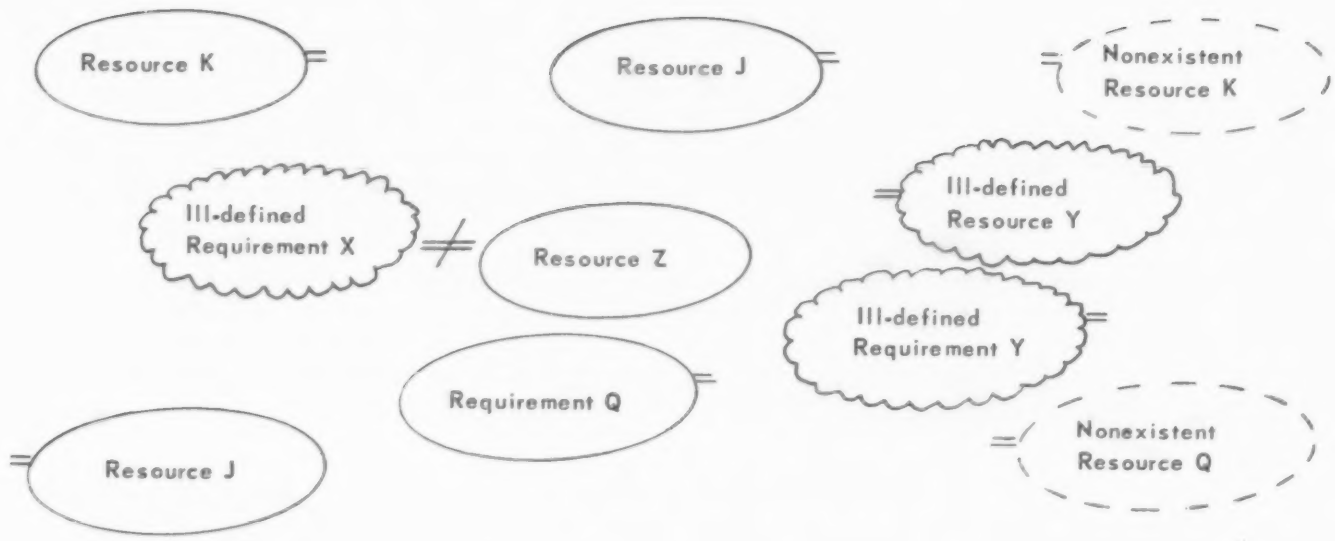

Figure 2. The current chaotic status of training requirements and resources in the fields of educational product development and evaluation

available resources, ill-defined training requirements lead to inappropriate requirements-resources matching, and nonexistent training resources fail to satisfy certain types of training requirements. This dismal picture can undoubtedly be found in professional fields other than educational development and evaluation. But in these two fields, where the potential exists for securing dramatic improvement in the quality of American education, the situation must be immediately rectified. It is proposed that this can be done through the establishment of a nationwide consortium whose primary mission will be to improve the training of personnel for the critical fields of educational product development and product evaluation. These improvements will be promoted as a consequence of the consortium's promotion of the following five functions:

Function No. 1. Explicating training need requirements and training resource capabilities.

Function No. 2. Facilitating, on the basis of carefully matched requirements and resources, the contact and consummation of training arrangements for those in need of training and those capable of supplying it.

Function No. 3. Assessing the effectiveness of all training resources whose instructional programs are made available through the services of the consortium.

Function No. 4. Improving the quality of training resources for those agencies or individuals electing to receive such assistance.

Function No. 5. Creating new resources to satisfy training requirements for which no training resources currently exist.

Each of these functions will now be examined in more det[illegible]ng with a description of the procedures used for its accomplishment.

Function No. 1: Explicating Requirements and Resources

One of the most persistent deficiencies in designing and carrying out any type of instructional program is the imprecise nature of the instructional intentions. During the 1960s we witnessed considerable progress in this country regarding the instructional

dividends to be yielded from explicitly stated instructional objectives. One function of the consortium would be to promote great clarity on the part of those needing training with respect to exactly what kinds of competencies they required. In some ways this operation is comparable to how the Title III (ESEA) educational needs assessment operations now conducted by many states should function. However, it is probably closer to the more intense job analyses which have been successfully employed in many vocational fields.

Similar clarity must be brought to the potential suppliers of training regarding the specific types of competencies which they take responsibility for promoting. There can be no precise matching between resources and requirements if there is not certainty regarding each. A major responsibility of the training consortium would be to refine the precision with which these requirements and resources are described.

The task of explicating requirements and resources, at first examination, might appear to be a rather casual process of sharpening the specification statements used by potential trainers and trainees. It is far more than that. The consortium will have to bring a heretofore unachieved conceptual clarity to the fields of product development and product evaluation. The major competencies, or groups of competencies, potentially needed in these fields must be identified and described in a functional structure. We must identify the major rubrics which can be used to adequately describe these two fields so that training requirements and resources can be more accurately identified.

The absolute necessity for a structural analysis of the fields of product development and evaluation can be illustrated by a common example involving an agency in need of training. Suppose executives of a commercial producer of educational materials wishes to develop a new capability for preparing audio-visual aids. If they were to identify their training requirements to the staff of the consortium they might do so in rather general terms, e.g., "We need persons skilled in preparing audiovisual aids." The consortium staff could always play the clarifier game, of course, such as "What do you mean by . . . ?," but a point would quickly be reached where the individuals who needed training really wouldn't know what they meant, for they would be unfamiliar with the range of potential development competencies. Only by pursuing, in a systematic fashion, the need for each of these sets of competencies could an accurate description of training requirements be secured. By probing loosely conceived training requirements according to well structured sets of competencies, we could expect not only more precise sets of requirements, but also requirements which are more attuned to the actual instructional needs of the would-be developer. Putting it more bluntly, not only are those in need of training often unaware of how to specify what they want, they are frequently unaware of what they should want. By employing a carefully delineated structural analysis of the fields of product development and product evaluation the consortium can systematically promote the required level of clarity.

The general strategy to be employed in carrying out this function will be to promote measurability of both requirements and capabilities. When a requirement is stated in a measurable fashion, it is a relatively straightforward matter to assess an individual in order to discern whether he possesses that skill. By aiding a group with a training requirement, e.g., a regional educational laboratory, state its training requirements so that they can be measured. It can be determined whether trainees can display those measurable competencies at the close of training.

Similarly, if training resource groups can be aided to state their capabilities in terms of measurable outcomes, it is possible to assess at the end of training whether these skills, attitudes, etc., were actually promoted. There are, of course, identifiable side benefits to the training resource group (such as the reduction of irrelevant instructional activity) which can be accrued from measurable delineation of outcomes.

More specifically, the consortium will assist its members in these clarifications, not demand them as a prerequisite for participation. In other words, the consortium

staff will not issue a flat demand of "Measurable competencies, or else." Rather, by presenting alternative formulations as potential models, patient refinement analysis, and employing the principal tactics of the Instructional Objectives Exchange,* whereby individuals select from already prepared collections of measurable competencies, the consortium staff will sharpen its members' perceptions of either (1) what they want or (2) what they can do. To aid in this process, sets of specifications will be distributed which describe acceptable form for training requirements and training capability statements.

The key ingredient in achieving the required level of explicitness for requirements and resources will be a comprehensive set of competency statements, organized around categories of related competencies. Each of these competencies will be measurable and, in fact, will be accompanied by a set of measuring devices (using the broadest possible definition of this term, not only paper and pencil measures). These competencies and mreasures will be known as competency grids. Thus, the consortium will have available a multidimensional competency measuring device which can be used in part or as a whole to assess the quality of training efforts as well as to promote greater clarity of those with training requirements as resources.

We would expect, therefore, that by performing this function we would witness the elimination of ill-defined training requirements and resources such as seen in Figure 3.

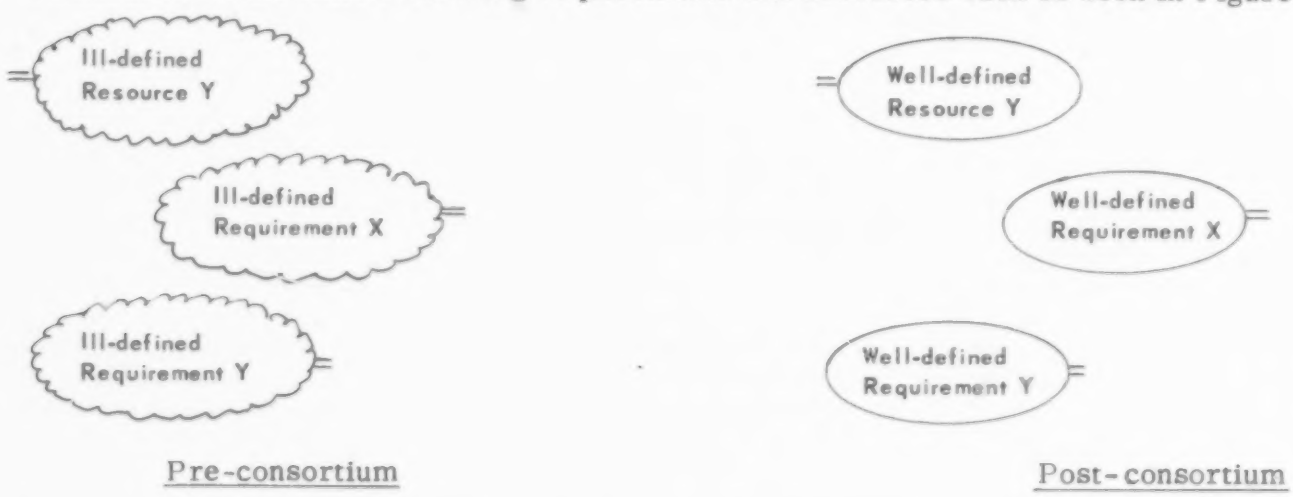

Figure 3. The result of the consortium's fulfilling Function No. 1, Explicating Requirements and Resources

Function No. 2: Facilitating Resource-Requirement Matches

More seriously than any other fields in education, there is an appalling dearth of training resources in the fields of educational product development and educational product evaluation. Yet, even though this is so, there are isolated individuals and agencies which have in the past carried out effective training programs. There are also talented individuals who could, if aware of specific training needs, apply their abilities to the preparation of exemplary training programs in these fields. In other words, some of the capabilities exist, some must be created.

Both the extant and the yet to be born training resources must be put in contact with those groups in need of training. Thus, a second function of the consortium would be to serve as a sort of catalytic clearing house or, perhaps, unbiased booking agent. Catalytic

*The Instructional Objectives Exchange, Center for the Study of Evaluation, University of California, Los Angeles, 1969.

in the sense that it would actively promote the creation of high demand training resources, the consortium would attempt to bring together those needing particular forms of training with those agencies which could supply such training.

Visibility is an important attribute of any group attempting to bring people together. Individuals in need of trained developers, for example, should automatically think of the training consortium as the best source. Competent training resource groups should routinely wish to register their capabilities with this highly visible, albeit specialized, consortium. The consortium will have to establish its existence and announce its services to potential users and trainers. In the fields for which the consortium was designed, this should not be difficult since little systematic training potential currently exists. The consortium can capitalize on the already established work of UCLA in these fields through the activities of the Product Research Training Program, the Center for the Study of Evaluation, and the Doctoral Program in Educational Evaluation.

The primary procedure by which user and trainer will be matched will be through the preparation (and frequent updating) of a comprehensive listing of both training resources and training requirements. The training resource information would include the following:

1. The specific measurable competencies which the resource group purports to promote (using the competency grids previously described)
2. Costs per trainee
3. Time required for training
4. Staff qualifications
5. Evaluations of training effectiveness
6. Current availability
7. Miscellaneous, e.g., housing facilities, travel problems. The training requirements information would include the following, with special identification of training requirements for which training resources are nonexistent or in short supply:
   a. The specific measurable competencies needed (using competency grids)
   b. Permissible costs per trainee
   c. Allowable time period
   d. Other constraints, e.g., geographic

This information would be treated with requisite confidentiality, although certain data would be widely disseminated, such as the need for new types of training programs.

In general, there would be a variety of schemes employed to solicit required training programs, for instance, announcements in the Educational Researcher, Journal of the National Society for Programmed Instruction, Evaluation Comment, Educational Technology, etc. Further, a comprehensive constituency in the training consortium (see consortium organization in later paragraphs) will facilitate the accomplishment of this function.

The consortium staff would have to be particularly attentive to the results of any manpower analyses, such as those which are being conducted by the AERA Task Force on the Training of Educational Researchers, since projections regarding personnel needs in the two fields under consideration should influence proselyting activities of the consortium.

By satisfactorily accomplishing Function No.2, the consortium would promote the situation depicted in Figure 4.

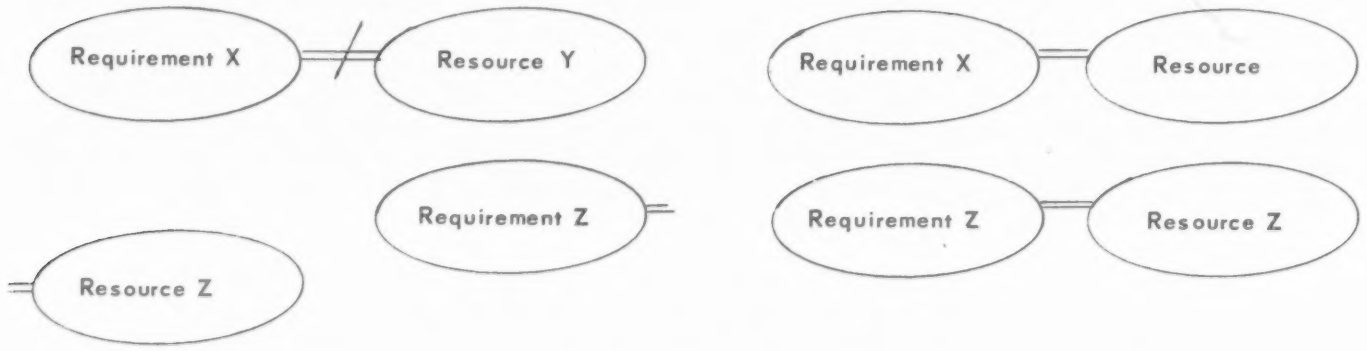

Figure 4. The result of the Consortium's fulfilling Function No. 2, Facilitating Resource-Requirement Matches

Function No. 3: Assessing Training Resource Effectiveness

All agencies or individuals which participate as training resources in the consortium will be required to be evaluated at the close of each training enterprise. The results of these summative evaluations will be added to the information (See Function number one) available for each training resource.

At the outset, the consortium would rely upon (1) evaluations conducted according to specifications, either by the training resource agency or by an outside group (these evaluations to emphasize trainee demonstration of measurable skills) and (2) anonymous post-training evaluations solicited from participants. Hopefully, as soon as feasible these evaluative data could be bolstered by summative evaluations conducted by the consortium staff itself. Use of the multidimensional competencies measures will be critical at this juncture. Particular subsections of the test will be constituted in relationship to the competencies purportedly promoted by the training group. The evaluative process will, therefore, focus on the attainment of measurable skills promoted by the training programs and will employ criterion-referenced measurement procedures, as well as recommended evaluation methodology, e.g., matrix sampling and suitable evaluation designs, whenever practicable. Once more, advanced graduate students from the UCLA evaluation program can provide important assistance in accomplishing this function.

As a consequence of accomplishing this function, the consortium would promote the situation depicted in Figure 5.

Figure 5. The result of the consortium's fulfilling Function No. 3, Assessing Training Resource Effectiveness

Function No. 4: Improving Training Quality

For those training resource groups wishing to avail themselves of this service, the consortium would provide formative evaluation assistance, that is, aid in improving the quality of the training enterprise. Because of the consortium staff's familiarity with a wide variety of training programs, coupled with required post-instruction evaluation data, the possibility exists of working with any training resource group to improve its effectiveness. It must be re-emphasized that this would be a volitional, not required option of a training group and it is expected that not all of the participating training resource groups would elect to use this consortium service.

The consortium will prepare a task force of formative evaluation specialists, well schooled in the field of instructional psychology. When called upon by a training resources group to provide this instructional improvement of the training program under consideration, they will employ customary instructional analytic guidelines, e.g., task analysis of en route behaviors, quantification and appraisal of relevant practice opportunities, assessment of learner feedback procedures, positive affect-building schemes, etc. If possible, data will be secured from trainee participants during and after the training session, not only on performance measures but also suggestions regarding program modifications.

A key resource for this formative evaluation task force will be advanced graduate students in the UCLA education evaluation doctoral program. These students will be specially trained and carefully supervised for this important evaluation role. Another key resource group will be advanced students in the UCLA product research training program who can aid training program groups in the preparation of replicable instructional materials.

Reports of the formative evaluation would be forwarded to the training resource group, but the measures developed and information gained would be of utility in conducting future formative evaluations. By accomplishing this fourth function, the consortium would promote the result seen in Figure 6.

Figure 6. The result of the consortium's fulfilling Function No. 4, Improving Training Quality

Function No. 5: Creating New Resources

In the fields of product development and product evaluation there are far fewer training resources than needed. This assertion can be safely made without sophisticated manpower analyses merely because there are very, very few current training capabilities in these two fields. The consortium would need to stimulate talented individuals or agencies to develop new training capacities. These might be rather general at the outset, for there is a paucity of training resources in these fields. As new resources are created, the establishment of additional training resources would depend on the analysis of consortium members' training requirements. Complete illustrations of the types of

new resources which the consortium would create during its first year or operation are given in a later section of this document (see New Training Resources).

The consortium would move to establish one or more general purpose training agencies to satisfy patently unmet training needs. Certain of these training resources would undoubtedly be created by the individuals or agencies initially involved in the consortium. Other resources might be created from those groups which submitted training designs under provisions of RFP 70-12, but which were not funded. Such individuals (possessing competencies in the two fields specified here) would be contacted to ascertain which of the training components in their designs might lend itself to the establishment of distinctive new training resources for the consortium. Other individuals and/or agencies would be approached to learn if they would be interested in setting up a training resource of relevance to the consortium's activities.

Each year of USOE funding the consortium would reduce its financial support to newly created training resources, thereby encouraging them to be partially, then totally, self-supporting. Indeed, the criterion of potential for self-support would be prominent in approval of any new training resource. USOE officials would, of course, approve any major fund expenditures associated with the creation of new resources.

A chief contribution to the creation of new training resources would be the Consortium Demonstration Laboratory which will play a prominent role in the development and diffusion of new training capabilities. The Consortium Demonstration Laboratory will be described later. As a consequence of fulfilling Function No. 5, the consortium would reduce the number of nonexistant training resources as seen in Figure 7.

Figure 7. The result of the consortium's fulfilling Function No. 5, Creating New Resources

These, then, are the five functions of the consortium. Through the accomplishment of these five functions the consortium would eliminate the current confusion in the training arenas of educational development and evaluation (seen previously in Figure 2), and would promote a training situation such as that depicted in Figure 8.

Figure 8. The status of training requirements and resources in the fields of product development and evaluation as a consequence of the consortium's activities

Consortium Organization

Membership in the consortium will be nationwide and will be open to any agency, group, or individual which has actual or potential training requirements or training resources in the fields of educational product development or product evaluation. Periodic meetings of the entire consortium group will be useful in determining future training requirements and resources, as well as securing the advice of individuals who, although not participating directly in a training operation at that time, may offer useful counsel. Consortium membership will be solicited early in February, 1971 and an initial meeting will be staged in April, 1971. An exploratory meeting staged in November, 1970 (see Appendix A) revealed a widespread interest of diverse groups in consortium participation.

The members of the consortium which possess actual training requirements and/or resources will constitute the most active members of the consortium; for it is by and for these individuals and agencies that the actual training will take place.

These training participants, along with individuals responsible for directing the consortium staff, will constitute the executive committee which will formulate major policy for the consortium's conduct. A central, stable consortium staff of senior and middle level professionals would implement these policy decisions. Three appointed members of training needs groups, three appointed representatives of training resource groups, and five appointed members of the consortium staff will constitute this eleven person policy group. The Consortium Demonstration Laboratory will constitute a key element in the consortium's operation. Schematically, then, with examples of the resource and needs groups which might be involved, we can depict the organization of the consortium as seen in Figure 9.

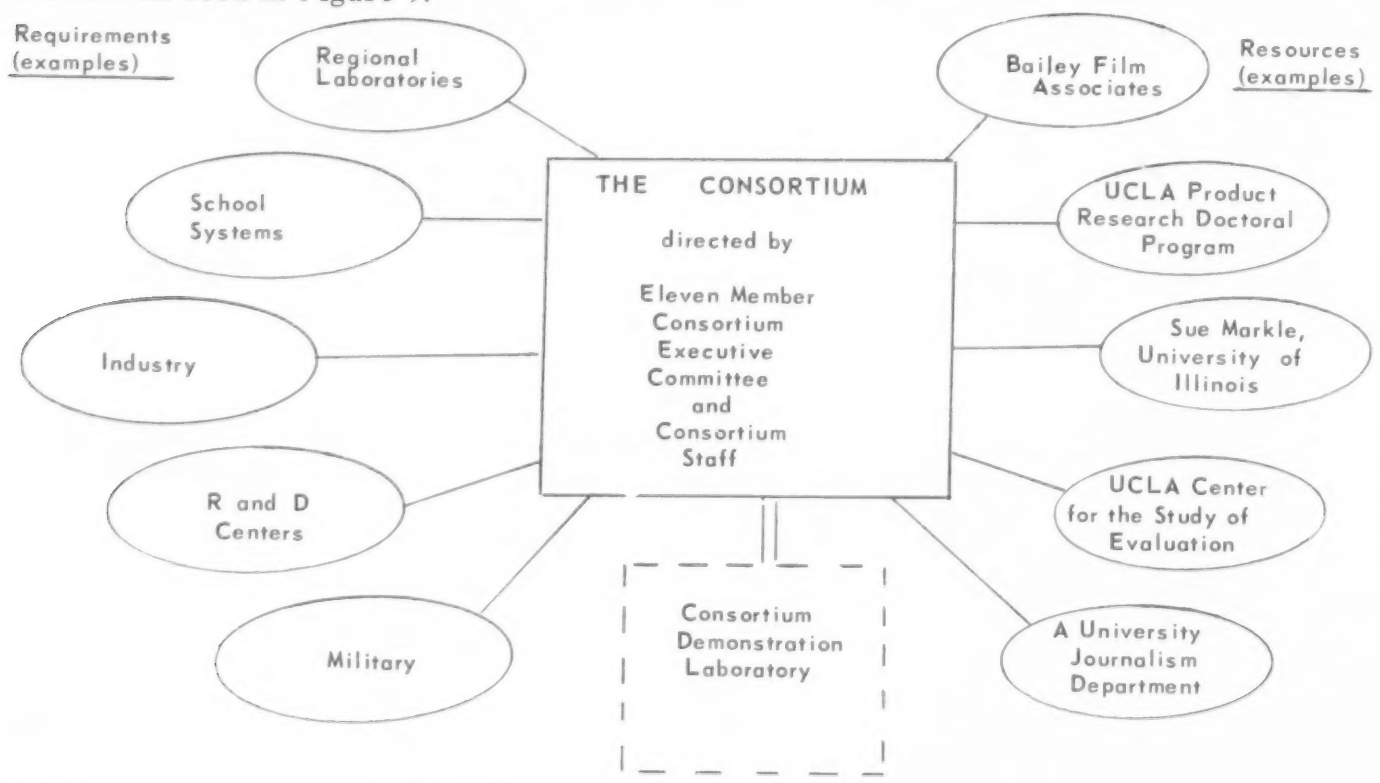

Figure 9. Relationship of consortium's participating members

The Demonstration Laboratory

The consortium itself can be conceived of as a conferation of those who need particular sorts of training and those who can supply such training. The principal functions of the consortium can be carried on administratively by the central consortium staff--but there is something missing. The consortium needs an intellectual nerve center, an entity addressed to the substantive problems of evolving and transmitting technologies of product development and product evaluation. We propose that this deficiency be remedied through the establishment of a Consortium Demonstration Laboratory.

Key Laboratory Roles. In the fullest sense of the term, the laboratory would serve a demonstration function. There would be demonstrations provided regarding effective educational development practices. There would be demonstrations provided regarding how to evaluate educational products. There would be demonstrations of how to train product developers and product evaluators. There would also be less frequent, occasional demonstrations regarding educational research and diffusion. Thus, a chief role of the Laboratory would be demonstration of educational development and evaluation, coupled with demonstration training of personnel who must perform those two functions.

A second role of the Demonstration Laboratory would be to design, test, and export training procedures which could be employed by training resource members of the consortium. The new training procedures would be focused exclusively on the topics of (1) educational development and (2) educational product evaluation. At the outset the training procedures would undoubtedly be rather general in orientation, for few, if any, basic training enterprises currently exist in these two fields. As new training approaches were developed, tested, and exported, the new training schemes developed would be more specialized in nature to remedy particular training resource deficiencies. Throughout the design and testing of these training schemes a prime criterion would be the ultimate exportability of the scheme. There would be heavy reliance on the use of instructional materials and upon highly explicit guidelines for members of an instructional staff other than that of the Demonstration Laboratory.

Quite naturally, following from this emphasis on exportability, a third role of the Consortium Demonstration Laboratory will be the actual development of training materials to prepare product developers and product evaluators. These materials, delightfully, can often serve as the actual products which are, in demonstration fashion, being prepared by the Laboratory. Their development and evaluation can be the grist for the Laboratory's production mill while at the same time serving as some of its major contributions.

Another role of the Laboratory would be to engage in explicit decision-oriented research regarding the differential efficacy of alternative training schemes. This would not be a frequent activity of the Laboratory, but occasions would arise in which the merits of different approaches to training would have to be experimentally studied.

A final role of the Laboratory will be to devise and test the worth of alternative diffusion techniques. The whole thrust of the Consortium will be to expand training resources. We must learn how to disseminate the newly developed training schemes so that they will be employed by others.

Operation of the Laboratory. The Consortium Demonstration Laboratory will be located near UCLA, but off campus. There are significant reasons for this decision. By being close to UCLA the Demonstration Laboratory can capitalize on the considerable talent available in several disciplines at that institution, e.g., theater arts, linguistics, education, psychology. By being off campus, the Demonstration Laboratory can depart from the constrictions of traditional academic organizational structure. We want to blend highly talented professionals into an important, innovative training enterprise. An off-campus, relatively autonomous site will be ideal for this purpose.

There will be three types of training programs conducted by the Consortium Demonstration Laboratory, all three in each of the two fields of concern, i.e., product development and product evaluation. The three general training program forms will be these:

1. A core basic training program of 6-12 months duration centered around the basic elements of the operation in question, for example, product development.

2. Short-term orientation courses of several days to several weeks duration designed to provide overview familiarity with the essential ingredients of either product development or product evaluation.

3. Special purpose training schemes of variable duration for particular needs of those agencies or individuals with training requirements.

The core basic training program would be in almost constant operation, and would be organized in separable components so that trainees commencing the basic course could begin their training at numerous times during the year.

Demonstration Laboratory Staff. There will be two main sources of staff for the Demonstration Laboratory. The first source of staff will be UCLA faculty and advanced graduate students. The second source for staff will be from the individuals and agencies comprising the consortium itself. There will be talented trainers throughout the consortium who will welcome the opportunity to participate as a visiting staff member of the Demonstration Laboratory. These temporary staff trainers will usually be drawn, of course, from the training resource groups of the consortium. But individuals in the training requirements groups will also be involved as reality monitors, that is, as individuals who will make sure that the Laboratory is preparing trainees for the real world situations in which product developers and evaluators are needed.

This mix of trainers from UCLA and trainers from the consortium will provide a deterrent to ingroup isolationism and will offer the widest possible array of trainer talent. Further, the operation of the Consortium Demonstration Laboratory by representatives of the Consortium will engender a closer relationship between the Laboratory and its consortium collaborators.

The Consortium as a Prototypic Mechanism

The structure of this type of consortium is conceived of as potentially transmittable to other areas of professional training where customary training schemes have proved less than totally satisfactory. While the consortium currently proposed is responsive to particular training problems, if the model proves satisfactory it should be implemented in other fields as well.

Although there will be the necessity for federal financial support at the outset, the level of this support should be reduced sharply after the consortium has fostered the creation of totally or partially self-supporting training resources during the first few years of its operation.

APPENDIX B

In mid-September 1970 the letter on the following page was sent to 300 potential users of the training program we were designing. Of the 45 responses, 77 responded positively indicating probable to definite interest in the new program. A list of these 77 individuals, and the agencies they represent is included following the sample letter.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

CENTER FOR THE STUDY OF EVALUATION
UCLA GRADUATE SCHOOL OF EDUCATION
LOS ANGELES, CALIFORNIA 90024

September 17, 1970

Dear

A group of us here at UCLA, including Marvin Alkin, Eva Baker, Evan Keislar and John McNeil, have been awarded a contract by the U.S. Office of Education to design a training program for preparing (1) education product developers and (2) educational product evaluators. Near the end of the year we will be submitting our program design to U.S.O.E. and, if approved, the training enterprise will be supported for at least a three-year training period at a very substantial level.

Since these individuals have a wealth of experience in training educational product developers and evaluators, we anticipate putting together an outstanding program. UCLA has for the past several years offered the country's only doctoral level graduate program in instructional product development. In addition, the UCLA Center for the Study of Evaluation is currently the major U.S. research and development agency devoted to inquiry regarding evaluation.

There will probably be only three of these new training programs established, so they must definitely serve a national trainee clientele. I am writing you to determine whether your agency would wish to use the resources of the new training program either (1) to provide training in product development and/or product evaluation for members of your staff or (2) to employ newly trained individuals in either of these specialties.

Let me be a little more specific about the training program we are planning. It will be operated by a consortium of agencies and individuals, most of whom will be located in southern California. A staff drawn from this consortium will operate an off-campus training institute affiliated loosely with UCLA. The institute will probably offer both a year-round training program as well as shorter, specialized courses (from a few days to several weeks).

Throughout the training activities there will be a dual focus on providing training (both beginning and advanced) for the following two specialties:

> Educational Development. The process of preparing essentially replicable instructional materials or sequences which take responsibility for producing a given behavior change in specified learners. Examples of educational products developed by this trial-revision sequence would include: printed self-instruction programs, highly systematized instructional procedures, educational videotapes, filmstrips, etc.
>
> Educational Product Evaluation. The process of assessing the worth of already prepared educational products such as textbooks or films; that is, all of the materials which could be produced as a consequence of the work of the educational developer.

Although of necessity I have been brief, is there any likelihood that if our training program is set up and functioning as of summer, 1971 that your agency would wish to use the services of the program? If so, I hope you would be willing to write me indicating the nature of your training needs.

Even though we are in the midst of working out details of the new program, I will try to supply additional information if you wish. What I am attempting to do at the moment is simply to explore the current level of training requirements in our two fields of emphases.

Sincerely,

W. James Popham
Professor of Education

WJP/rs

Positive Response to Form Letter Received From:

1. Fred E. Holdrege
   Director
   Regional Education Laboratory
   Mutual Plaza
   Chapel Hill and Duke Streets
   Durham, North Carolina 27701

2. Jerry Warner
   Executive Producer
   Jerry Warner & Associates
   8615 Santa Monica Blvd.
   Los Angeles, California 90069

3. Theodore Waller
   President
   Grolier Educational Corporation
   845 Third Avenue
   New York, New York 10022

4. George T. Cline, Jr., Chief
   Directorate of Personnel
   Department of the Air Force
   Headquarters Aeronautical Chart
   and Information Center
   St. Louis, Missouri 63118

5. Scott B. Parry
   Director
   Sterling Institute Training Development Center
   Two Pennsylvania Plaza
   New York, New York 10001

6. Judy V. Wilson
   Editor, Programmed Instruction
   John Wiley & Sons, Inc., Publishers
   605 Third Avenue
   New York, New York 10016

7. Kevin Smith
   Executive Vice President
   Education Development Center
   55 Chapel Street
   Newton, Massachusetts 02160

8. B. G. Pauley
   Deputy State Superintendent
   Department of Education
   Charleston, West Virginia 25305

9. James W. Becker
   Executive Director
   Research for Better Schools
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10. Lee M. Ellwood
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    Dallas Independent School District
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    Dallas, Texas 75204

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12. Richard Avila
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13. Justin M. Purchin
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14. Roger Flemming
    Executive Vice President
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15. Weldon Perrin
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    State Coordinator
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    Dover, Delaware 19901

17. Frank Kellel, Jr.
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21. Preston W. Kelly
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33. Gordon A. King
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34. Gordon R. Hjalmarson
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35. Louise Pastore
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36. Harry L. Wellbank
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